NATIONAL ASSOCIATION OF COST ACCOUNTANTS

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NEW FRONTIERS FOR THE INDUSTRIAL ACCOUNTANT

NATIONAL ASSOCIATION OF COST ACCOUNTANTS

1950

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OF THE

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SESSION I

ECONOMIC SECURITY PLANS AND THE ACCOUNTANT

MONDAY MORNING, JUNE 19, 1950

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PERCIVAL F. BRUNDAGE has been a Partner in the public accounting firm of Price, Waterhouse & Co. since 1930 and has been in the public accounting field since shortly after his graduation from Harvard College in 1914 with an A.B. cum laude. He is a Certified Public Accountant of New York and also of a number of other states.

Mr. Brundage's professional activities have been and are extensive. He is a Past President of the American Institute of Accountants, having served in that capacity for the year 1948-1949, and is also a Past President of the Massachusetts Society of Certified Public Accountants. He is at present Chairman of the Study Group on Business Income financed jointly by the American Institute of Accountants and the Rockefeller Foundation and is Co-Chairman of the National Conference of Lawyers and Certified Public Accountants.

An author in his profession, Mr. Brundage has had numerous articles published in accounting and business periodicals, including The Journal of Accountancy and the Harvard Business Review.

ROBERT C. TYSON was elevated to the Comptrollership of United States Steel Corporation earlier in the present year after more than ten years of service with his company and an equal number with the public accounting firm of Price, Waterhouse & Co. Mr. Tyson was graduated from Princeton in 1927. He is a Certified Public Accountant of New York, having received his certificate in 1934.

Mr. Tyson joined his present company as Assistant Audit Supervisor. Before appointment to the position he now holds, he was promoted, successively, to the posts of General Accountant and Assistant Comptroller.

WHAT PRICE ECONOMIC SECURITY?

PERCIVAL F. BRUNDAGE

Partner, Price, Waterhouse & Co.,
New York, N. Y.

THE subject assigned to me to open this distinguished program was not my own selection, but it is appropriate, I think, to commence our sessions with a general discussion of the question of economic security. How much do we want it? How are we going to get it? What will be the cost and the collateral effects that may result?

The history of the white man in North America has been essentially a struggle for freedom from oppression, for an opportunity to build his own life and to express his own ideas. As our country grew the frontier was pushed westward, but we have had what was essentially a frontier economy until our own lifetime. More recently we have begun to develop the symptoms of a maturer (I did not say mature) society. There are many indications of this change but none more pronounced than the recent demand of labor for security rather than increased freedom of opportunity. This, it seems to me, is a definite trend quite apart from the further question of who is to supply the security—government, business or the family.

Freedom and Stability Not Necessarily Opposites

The appeal of security and protection naturally increases as one grows older. We tend to become less ambitious, less anxious to experiment with new ideas, new developments, new ways of living. The old ways have been tried and seem so much safer and desirable. That is why businesses that grow old without bringing in new blood and new ideas tend to die out.

There is definite value in both the stability of the old and the vigorous strength of the new. Some degree of stability plus provision for growth are both essentials of our modern society. However, the stability that we want to achieve is akin to that of a sailboat rather than a float. In a sailboat you need weight and balance in

the hull. You need strength in the masts, ropes and sails. But you also need adaptability to take advantage of a light breeze or to bend with a strong wind. You need latent capacity for a clever skipper to bring out, in order to win the race.

Freedom is not necessarily the antithesis of stability. If every individual were free to do anything he liked, no man's life or property would be safe in the anarchy that would result. In order to keep our freedom in a complex society certain limitations and restrictions are necessary. Laws and conventions have grown up to prevent freedom from becoming license.

One of the features of a mature society is that there must be more planning than in a pioneer society. Our forefathers had to improvise to meet each situation as it arose. As business became more complex it was necessary to make out budgets and reach policy decisions long in advance of their application. But planning is only as good as the planners, and it is important that business and the nation select those most qualified and with the best experience, to do the planning. Intelligent planning by experts need not destroy the liberty of the individual.

Behind Pensions: Industrialization, Invention, Taxation, Inflation

The planning of the individual is directed primarily to his own family and himself. Why is it that the current drive for pensions and welfare funds has assumed such great importance? I think there are a number of reasons. In the first place, the idea of a pension on retirement has a stronger appeal to workers today, both young and old, than at any other time in our history. Even fifty years ago a large proportion of the population lived on farms or in small villages. They were self-employed and had a high degree of economic self-sufficiency. With the tremendous industrialization of the nation more and more individuals have come to live in large cities, have become employees of others, and are economically dependent on their employers and on the community. It is only during our lifetime that the workers, particularly in the basic industries, have been effectively organized and have become strong politically. During this same period the employers have become much weaker politically.

Discoveries of science and the inventions of industry have increased the desires of the average man and his family. The luxuries of yesterday have become the necessities of today and new wants

are continually developed by our advertising techniques. The introduction of the installment plan has tied up many a man's future wages for months ahead and made savings for old age much more difficult.

Another factor in the demand for pensions is the tremendous increase in taxation. As taxes increase, less can be saved by taxpayers out of current income for use after retirement. So the employee looks to his company and the government for support in his old age.

A fourth important development is the decline in purchasing power of the dollar. The increased cost of living uses up a large part of the increased size of the pay envelope. The problem of investment by the working man has also become more perplexing. A favorite investment has been the savings bond. These, as you know, are purchased for 75 per cent of face value. The 33⅓ per cent increment on maturity ten years later is taxed to the owner in spite of the fact that the purchasing power of the amount received will in all probability be less than the purchasing power of the dollars originally invested. This discourages saving. The New Deal and the Fair Deal, too, have placed full employment as an objective ahead of control of inflation. So long as this is true and we continue to resort to deficit financing, there is little likelihood that we will have anything more than temporary halts in the upward movement of prices.

Life Span Increases—Productive Years Decrease

A fifth factor of great significance is the progress of medical science which has greatly extended our life expectancy. This has particularly benefited older people and has reduced the mortality of infants. Many more people live for years after retirement than they used to. At the same time science has done relatively less to reduce the hazards of workers. Accidental deaths and injuries from automobiles, airplanes and many other causes have increased. Industrial accidents are somewhat fewer but we have a marked increase in mental diseases due to the tensions of our strenuous existence. The net effect has been that the percentage of cases in which a son survives his father has been reduced rather than increased as one might think. Likewise, the proportion of widows surviving their spouses is larger than a generation ago.

The increase in the total population and the more rapid increase in the proportion over 65 years of age is indicated in the reports of

the U. S. Bureau of the Census. It is estimated that, while the total population of the country will have increased by 100 per cent between 1900 and 1960—from 75 to 150 millions—the proportion over 65 will have increased 500 per cent, from three to fifteen millions. It is further estimated that in another 25 years the number over 65 will have increased to twenty millions.

Another factor which should be mentioned has been the progressive tendency during the last few decades to raise the age limit at which employment begins and to lower the age limit at which it ends, in spite of the biological discoveries and other causes which have increased the average life span. The amount of education required of the youngsters in this age of many scientific discoveries and much specialization is tremendous. The numbers of graduates of colleges and technical schools has trebled in the last 15 years. At the other end of the scale, early retirement has been held out to workers as a halycon existence to which they should look forward. Yet there is no way of providing for those members of our population who are either too young or too old to be used for the production of goods or services, except by the support of those who are working or the use of accumulated savings.

The Rise of Pensions

Pension plans are not new. They are at least a century old in England and 75 years old in this country. Private pension plans were developed by the railroads to a considerable extent in the early years of this century. The Standard Oil Company (New Jersey) set up a pension fund in 1903 and the U. S. Steel Corporation in 1911. Many other leading companies adopted pension or savings plans after World War I, but the development was greatly stimulated during the last decade by salary stabilization, labor shortages, high excess profits taxes and revisions of the income tax regulations. The success of John L. Lewis in his annual coal strikes to obtain progressively increased payments into the mine workers' welfare and retirement fund brought the subject forcibly to the attention of all labor leaders. Encouraged by the decision of the National Labor Relations Board in the Inland Steel case that pensions were bargainable, the report of the Presidential Steel Board last fall, and increased public opposition to a general fourth round wage increase, pensions became a major objective of most of the unions.

At the result of the many factors I have enumerated, it seems pretty clear that we are faced with the acceptance of pensions as a social necessity. It is, therefore, all the more important to try to determine the kind of pensions which are most advantageous to all concerned, who should pay them and how large they should or can be. It is vitally important also to coordinate the program for Federal, state and private pensions, so that the combined burden will not exceed what the economic power of the nation can support.

The present position with respect to pension coverage is briefly as follows: There are approximately 35,000,000 workers now covered by Federal social security, of which about 7 million are also covered by private plans. In addition there are about 8 million workers covered by other pension plans. (These include 1.7 million railroad workers, 1.7 million in the armed forces, 2.4 million Federal civilian employees, and about 60 per cent of the 3.8 million state and local government employees.) Altogether, therefore, out of 60 odd million workers in the United States, over two-thirds are presently covered by some pension plan. The principal groups not covered are agricultural self-employed and farm workers, 7.4 million; non-farm self-employed and domestic servants, 9.2 million.

Questions of Policy as to Pension Amounts and Retirement Age

It is possible that the Federal old age and survivors insurance benefits will be increased by the present Congress, but even so they will not be adequate to maintain retired workers in any degree of comfort. The present average pensions come to about $26 a month and the new bill would boost the average individual payment to about $50 a month at age 65. There are several questions that might well be considered at this point. Do we want to make the pensions, particularly the Federal pensions, sufficient in amount to maintain retired workers in the degree of comfort to which they have been accustomed, even if we can afford it? In other words, do we want to remove the incentive for every active worker to set aside a portion of his income for use in an emergency or on his retirement? My answer is decisively in the negative. Every worker should consider it necessary to provide something for his old age in addition to such pension plans as he may have available.

As the second question, we may ask: is 65 a desirable age at which to retire? For some time labor has been fixing that age as an ob-

jective and has even expressed the hope that the optional retirement age might be advanced to 60 or even earlier in certain industries. However, the trend in this direction may be coming to a halt, since many of those now facing retirement under current plans seem to want to continue to work. It is nice to look forward to distant retirement but the closer it gets the more frightening it may appear. The steel contracts make retirement at age 65 permissive but not compulsory. Sumner Slichter has pointed out effectively that adequate pensions cannot be provided at moderate cost if the pension age is fixed at 65 and that the whole community would benefit by the additional output obtained by raising the retirement age to 70. It has even been suggested that the government might pay individual companies a portion of each worker's old age benefits, so long as he is retained as an employee after the age of 65.

Defects of Private Plans as Basic Security Provision

The variety of opinions expressed by economists, business executives, and labor leaders during recent months makes it desirable to have a broad study made to determine the soundest practical way to integrate private and government plans and to recommend a national policy for pensions and tax revision in accordance therewith. My own view is that basic security against the hazards of old age should be provided primarily by a Federal pension plan. Private plans should be supplementary, I think, and be developed as additional savings plans for workers.

To begin with, private plans cannot cover every one. The employees of our large industrial companies, particularly those who are members of powerful labor unions, can obviously obtain satisfactory coverage through private pension plans but the majority of workers do not fall in this category. It is doubtful if adequate protection can be obtained for the occasional or part-time worker, employees of small companies, the unorganized workers and members of the weaker labor unions. There are bound to be many inequalities between the ultimate pension payments that will be made to retired employees due to differences in the plans, the extent to which the plans are funded and the varying abilities of the companies to pay the benefits. Sooner or later such inequalities may breed resentment, rivalry and political pressure. Walter Reuther, President of the United Automobile Workers, has publicly announced that the ob-

jective of his union is to win universal pensions of $200 a month for all members of his union within a period of ten years. The A. F. of L., on the other hand, has recently decided to concentrate on increasing Federal pensions rather than private ones.

Most private plans impair the freedom of the workers to move from job to job. While a reduction in labor turnover is a distinct advantage to the average company and one of the reasons for the initial adoption of pension plans, this can become a drawback from a national viewpoint. The fluidity of labor has greatly contributed to our industrial progress in the past. Skilled labor, as well as new recruits, are needed for new developments and processes. Companies tend to refrain from hiring men in the middle-age brackets when their pension obligations become relatively heavier and postpone the recruitment of new personnel to replace inefficient help approaching retirement age. Attempts to organize regional or industry-wide plans have not been too successful. The area-wide plan advocated by labor leaders for Toledo has been strenuously opposed by Toledo businessmen who argue that such a plan would prevent the future development of that area. The operation of the industry-wide coal fund has been far from satisfactory.

The Case for Contributory Pension Plans

Federal social security payments are on a contributory basis and I believe that private plans also should be established on that basis. A contribution by the employee as well as by the employer is, to my mind, the most satisfactory arrangement. It encourages a feeling of self-respect and individual dignity on the part of the worker. My experience has been that it is a rare individual who appreciates that which is given to him without effort or sacrifice on his part. He is pleased but he is rarely grateful. In most cases it becomes accepted as a matter of right. This, I think, is particularly dangerous in a democracy like ours. Principles expressed in the Declaration of Independence and given reflection in the Constitution hold that we are endowed with certain inalienable rights, among which are life, liberty, and the pursuit of happiness. It was never suggested by our forefathers that we were endowed with a right to a job and the right to be supported in our old age. In my opinion we should earn the right to a job by willingness to work at whatever is available and that we shall merit support in our old age by having worked and

saved during our working years. I am referring now to those who are not physically handicapped.

Contributions made by employers to Treasury-approved pension plans are deductible for tax purposes. However, some of the requirements to obtain Treasury approval are, to my mind, economically unnecessary, undesirable, and should be revised. Employees' contributions both to Federal social security and to company pensions should be made deductible for tax purposes as well. It is probably desirable to fix some limitation, say 5 per cent of the annual salary or wage. A substantial part of the objection to contributory plans would be removed if these suggestions are adopted. It is quite significant, I think, that the CIO employees of Inland Steel Company recently voted three to one in favor of a contributory plan offered by the company as against the noncontributory steel plan based on the formula that settled the industry strike last fall. They obtained a vested interest and larger benefits through the company plan which had been in effect for many years.

Problems of Plan Funding and Fund Investment

With respect to funding, I believe that completely funded plans, both for the government and industry as a whole, are practically impossible within our lifetime. Certainly with our present Federal deficit and the reluctance of Congress to provide increased taxes, it is impossible to fund our Federal plan. There is considerable doubt in my mind as to whether it is desirable to entirely fund a company plan. No matter how carefully the computations are made, changes in interest rates, in life expectancy, in the value of the dollar and in other factors, are bound to make periodic revisions necessary.

There is the further question as to the wisdom of withdrawing from a company's working capital the funds necessary to fund an adequate pension plan. On the other hand, a pure pay-as-you-go basis is too dangerous. If business is bad it is more likely that employees who have reached retirement age will find that their current pay envelope is not large enough to supply the incentive necessary for continuing work. They would accept retirement on a pension at a time when the cost is heaviest on the company. Some averaging of the annual cost in good years and bad is desirable, so that the greater part of the cost can, if possible, be absorbed during the good years.

The problem of investment is apt to become a serious one as many

financial writers have recently been pointing out. The Federal old age and survivors trust fund representing excess of accumulated receipts over expenditures is already 12 billion dollars, and I do not think a reserve of more than twice that amount is desirable. A Federal plan should be practically on a pay-as-you-go basis, except for some averaging during years of decreased business activity. Company funds, unless they are invested in company securities, tend to drift into government bonds or other securities available for trustees in the several states. The requirement of a fixed annual contribution which must be turned over to insurance companies or to trustees in good years or bad may create a real burden in years of decreased activity and smaller profits. While we may not ever again have a depression like that in the 1930's, it is unlikely that we can completely eliminate peaks and valleys which serve as natural correctives in our free economy society.

This leads me to my own preference for company plans, which is one based partly on a percentage of the profits. So long as the company pension is a supplementary pension in addition to the Federal old age benefits, there are many advantages in making both the payments into the fund and the pension payments to retired employees variable rather than fixed quantities. They cannot both be fixed in amount in view of the many uncertainties in the computations. Considerable latitude should be granted the company trustees to turn over the amounts provided to insurance companies or to invest in company or other securities as they may see fit or even to retain part of the amounts as segregated working capital of the business. In order to do this, of course, there would have to be revisions in the tax laws.

Rewarding Those Who Have Borne Responsibility

There is one further point that I would like to make: some distinction, in my opinion, should be made between ordinary employees and those who have assumed administrative responsibility. There is a tremendous difference between a satisfactory employee, even one with long and loyal service who has done jobs assigned to him by some one else, and an employee who contributes to the direction of policy and the administration of a company's operations. Many individuals are not willing or able to take responsibility. A special incentive for assuming responsibility, as well as for outstanding service, is good business for all concerned. This can be provided by profit-

sharing plans with retirement benefits, or additional retirement pensions to officers and others in responsible administrative positions, or a continuing profit-sharing participation after retirement on a moderate basis. Here again revisions of the tax regulations would be required.

Eligibility and Vesting

New employees, in my opinion, should not become immediately eligible for a company's pension plan. The largest turnover is usually in the first year and I think there should be a waiting period of from one to five years. Furthermore, the company's contribution, whether or not trusteed, should not, in my opinion, be immediately allocated or vested in employees. They should acquire an increasing interest over the period of service. Their own contributions would, of course, be withdrawable at any time. After 20 years' service both contributions would become vested, subject perhaps to some withdrawal penalty, say 10 per cent, if the employee resigns and leaves for another job before he is incapacitated or reaches the age of 65. While this would have some freezing effect on turnover, I think the suggested limitations would remove the unfavorable aspects. In the case of profit-sharing plans each employee on retirement could be given a certain credit in the pool, based in part on the percentage of his own savings in relation to the total savings of all other employees and, in part, on length of service with the company.

In order to cover individuals in business who are proprietors or not working for others, some optional savings plan should also be provided. My own suggestion has been an allowance of a deduction from taxable income up to say 10 per cent of net income for savings invested in government bonds. These amounts would later become taxable in the year in which the bonds are sold or otherwise disposed of.

Paving the Way for Better Times

My remarks have been of a rather broad and general nature, as I indicated at the beginning. Mr. Tyson will outline the accounting problems of economic security plans but, before closing, I would like to emphasize again that the cost of all pension plans for nonworkers must ultimately be borne by the workers. This cost may become a crushing burden unless we can do something to reduce the tremendous load of taxation with which we are faced. If we could only wipe out

the curse of war from this world there is no reason why we could not have expanding social services, together with a greatly reduced tax burden.

Mutations in ideas appear as often as in biology. Dr. Harold Urey tells me that it is now believed by some of the greatest physicists, and he thinks it can be demonstrated mathematically, that the earth is not an offshoot of the sun but a mass of assembled dust. It has never been hotter than it is today and it is getting hotter all the time. This was a strikingly new idea to me. Most of the greatest developments during our lifetime have been in creative science. But there is no reason why we cannot make equally great advances in the political and social fields.

I believe that the creation of the United Nations as the all-inclusive world organization was a great development. It should be strengthened and, I think, supplemented by a closer, more limited union of the Atlantic democracies in order to defend our way of life and develop a wider freedom among the backward peoples of the earth. To my mind we are definitely headed in this direction and if we move rapidly enough we may be able to end the cold war without allowing it to get hot, through the very force of the intellectual and industrial might of the democratic countries. This would enable our 18 billion dollar defense budget, including European aid, to be reduced to such an extent that we could cut our taxes substantially and still take care of our retired men and women without unduly burdening the workers.

ACCOUNTING PROBLEMS OF ECONOMIC SECURITY PLANS

ROBERT C. TYSON

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WHEN historians of the future write our history for the first half of the twentieth century, they will undoubtedly say that it went out in a blaze of welfare, security and deficit financing. The opportunity and obligation of the accountant is to make sure that the brightness of the blaze does not blind us to the danger of the fire. Pensions, their costs and their consequences, are complicated and obscure to most people. Pensions, by their very nature, are arrangements which cover the life-spans of individual men and women and reach out even beyond that when groups of men and women are concerned. The things we do today about pensions will have consequences long after we are dead. We had better be sure that those consequences will be good, not evil. The fact that the consequences may be long deferred does not mean that they can be disregarded; it means, on the contrary, that these consequences must be even more vividly envisioned and so brought to bear on our present-day decisions.

The inherent nature of pensions presents an especial opportunity and obligation to the accountant as a member of the management team, and one which his occupation especially equips him to undertake. His obligation begins long before any names are signed to any pension contracts. Let me tell you why I think this is true. Take the simplest possible example: A company hires a youth at the age of twenty and agrees with him at that time that he will have a pension beginning forty-five years later when he stops working. Now look at the questions that pop up: How much will the pension be? Will he live forty-five years? If so, how much longer? Will he stay with the company? Where is the money to come from to pay his pension? How is it to be provided? These are only some of the questions. They multiply in their complexity as soon as you begin to consider the pensions of more than just one man.

Now who is to answer these questions and answer them *before* the pension arrangement is made? After that it will be too late. I submit to you that all such questions are to be answered only in terms of records—records of people, their mortality, their turnover in employment, their probability of disability, their normal advancement in the pay scale, their survival spans in retirement, the normal growth of the business and its employment, the sources of funds, the methods of ascertaining and allocating costs, the nature of sinking funds, and so on. These are the things about which accountants and their actuarial counsels are supposed to know more than any other element in the management team. Pensions, I repeat, are matters that present both opportunities and obligations to the accountant.

Factors on Which to Base Pension Payments

In deciding upon a pension plan, the first thing to be determined is usually the bases upon which the actual amounts of pension payments are to be determined. In the case of United States Steel's plan, the bases are the length of service, age and reason for retirement, average earnings over the last ten years of employment, with the added feature of minimum amounts inclusive of social security benefits. An immediate next consideration is what is the cost and whether or not the company can stand it. Depending on the cost, the bases are subject to reconsideration and revision.

Once the bases for granting pensions have been proposed, trained actuaries can determine within reasonable limits the dollar amounts to be paid to prospective pensioners in years to come. The accountant had best rely upon the skilled actuary for such estimates, supplying to him the necessary company records of employee numbers, sex, age distribution, compensation and turnover.

Providing for Pension Costs: I. Disbursement Method

Once the dollar amounts to be paid to prospective pensioners are established, the accountant is immediately confronted with the necessity of determining the method of meeting the cost of those payments. There are a number of methods of providing for the cost of pensions. One method is to operate the pension plan on what has come to be called the "cash disbursement" basis. In this case no provision is made for the pension cost during active employment of the pensioner. Upon his retirement he is, in effect, continued on the payroll at a

reduced rate of compensation. Some companies use this plan and some sincere individuals endorse it on principle. Others endorse it because it calls for the least immediate cash outlay, but this is a limited viewpoint.

I believe that the cash disbursement method is unwise from a management point of view, improper from an accounting point of view, and undesirable from the employee point of view. I think it is unwise from a management point of view because, even though we know that it inescapably results in a pyramiding of fixed cost through good times and bad, the initially low cost insidiously and deceptively leads both management and employees to think that pensions do not cost very much. An attitude of "after me the deluge" is, almost unconsciously, provoked.

I believe that the cash disbursement plan is improper from an accounting point of view because it ignores in the cost of the product currently produced the cost of the pension currently earned but paid after the employee stops producing. There seems to be no justification for an accountant to ignore a part of a cost simply because the payment of that part of the cost is divorced in time from the performance of the service for which it is paid. No accountant, for example, would defer or ignore the current social security tax cost until such time as the employee upon whose earnings the tax is paid starts to receive social security benefits.

I believe that the cash disbursement plan is undesirable from an employee point of view because there is no assurance to the employee that the money for his pension will be available when he qualifies to receive it. It is a matter of record that during the 1930's many pension plans using the cash disbursement method were terminated or the pensions had to be reduced, including the pensions of those already retired. Mr. George B. Buck, a distinguished actuary regularly consulted by business, government bodies, and labor organizations, has publicly stated: "Generally speaking, the cash disbursement method of providing for pension costs is being discarded as inequitable, unsound, and dangerous to the pension security of retired employees."

Providing for Pension Costs: II. Funding on Retirement Method

So much for the cash disbursement method. A second method of providing for the cost of pensions is to make no provision for an employee's pension during his active service but to pay into a fund at

the time of his retirement an amount of money which, with the interest it should earn, is calculated to be sufficient to pay his pension over his remaining life. From the employee point of view this is slightly better than the cash disbursement method because, once the money is paid into a fund, the employee is assured of receiving the payments to which he has become entitled. From the company point of view this plan in its early years requires heavier payments than the cash disbursement plan. But over the life of the plan the required company payments are less, by reason of the interest earnings of the fund, which earnings cover part of the payments to pensioners.

However, like the cash disbursement method, this second method fails to recognize the cost of the pension during the period of active service. From the company's standpoint, it also has the added and serious disadvantage of obligating the company to provide large lump sum payments at the very times it may prove difficult to do so. This results from the natural and historical fact that in times of good business and labor shortage, retirements for age or for disability both tend to be deferred. But when business subsequently declines and losses may replace profits, the accumulated deferred retirements are added to normal retirements to impose a sometimes embarrassingly heavy drain on the company's finances.

Providing for Pension Costs: III. Annual Future Service Cost Basis

A third method of providing for the cost of pensions is that which meets the minimum funding requirements under the United States Treasury Department tax regulations. This minimum requirement is that the past service cost at the effective date of the plan must not be permitted to increase. Stated another way, the annual future service cost must be met in full, and an amount at least equal to the interest on the past service cost, at the rate assumed in actuarial estimates, must also be met. The terms, *future service cost* and *past service cost,* present something of a mystery to many people. However, their meaning can readily be developed.

Thus this third method of providing for the cost of pensions starts out by recognizing that the current cost of an employee's service is greater than the amount currently paid to him as wages because, as he works, he concurrently establishes a possible claim to a pension. In a sense this is a claim to more pay for the same work; it is therefore deemed to be a part of the cost of that work and hence a part

of the cost of the product currently resulting from that work. Under this method, the actuary computes for the employees as a group the probable pensions that will be paid to surviving members of the group. He next determines an amount which, if paid into a fund currently, will, with the interest earned by the fund, provide the amounts necessary to pay the pensions to the survivors of the group, based on their service rendered subsequent to the installation of the plan. This annual amount is the item which is given the name, *normal or future service cost.*

Note carefully that this normal or future service cost does not provide for the cost of any pension payments based on service rendered *prior* to the installation of the plan, for which employees may be retroactively entitled to credit for pension purposes. As its name implies, the future service cost looks to the future—that is, to pensions based on service rendered subsequent to the date the plan goes into effect.

This leads us to a consideration of the means of providing for pensions based on service previously rendered, and to their cost. This is the part of the cost of a pension plan which has provided the greatest confusion and greatest controversy. These are the more intensified because there is something of a moral question involved. Thus, a claim made today for a pension based on service rendered in the yesterdays is tantamount to a retroactive claim to greater compensation. But since the greater compensation was not a part of the employment arrangement in the past it was neither recognized nor provided for. If it is now retroactively to be granted, its cost must be borne by someone in the future. In business life this means that prices today and in the future must be higher in order to pay for the retroactively higher wage costs of products produced and used up in the past.

The retroactivity of the claim to pensions based on prior service finds no ready counterpart in financial legerdemain. If the clock could really be turned backwards and the company could state its costs all over again, it would have provided in the past for the same normal cost of that prior period as it now begins to provide for the future. On the date the plan is installed the company would then have already provided sufficient funds which, together with interest already earned and to be earned thereon, would meet that part of the cost of future pensions based on service rendered prior to the start of the

plan. The amount of this hypothetical fund at the date the plan is installed is the item to which is given the name, *past service cost.*

Since the fund is a "what might have been" fund and does not in fact exist, the immediate question is what to do about it. Because the fund does not exist, it obviously cannot earn interest. Unless some provision is made to cover the interest amount, the unfunded past service cost will rise each year. Meeting this interest, in addition to providing what I have described as the normal or future service cost, is the Treasury's minimum requirement for funding pensions. This minimum funding leaves the actual financing of the principal of the past service cost to be covered in some other way. So long, however, as the amounts being paid into the fund are greater than the money paid out to those qualifying for benefits, the plan may be expected to operate without getting into financial difficulties.

Providing for Pension Costs: IV. Funding of Past Service Costs

A fourth method of providing for the cost of pensions is to pay the future service cost, the interest on the past service cost and, in addition, to fund the past service cost. Under Treasury regulations the maximum amount of funding, including interest on the past service cost, which is permissible in any one year for tax deduction purposes, is ten per cent of the past service cost at installation date. This means that, at a maximum permissible funding rate, it would take about eleven and a half years to complete the funding. Under this method, after the past service cost is completely funded, the company has only the future service cost to pay.

Importance of Current Recognition of Pension Costs

From the employee point of view it is to be noted that methods three and four, which have just been described as recognizing the cost of an employee's pension during the period of his active employment, provide much greater certainty that when the employee retires the funds will be available to provide for his pension, than do the first two methods. Methods three and four are thus obviously more desirable from the employee point of view, since they afford him more protection. Indeed, this is well recognized by union negotiators, who in recent negotiations have demanded that pensions be funded in accordance with one of these two methods.

From the management and the accounting points of view, methods

three and four have the virtue of more nearly stating the true cost of pensions when the work on which they are based is being performed. Under these methods the future service cost can be expressed as a level percentage of payroll. Absolute dollar costs will then fluctuate directly with payroll rather than sometimes oppositely, with possibly embarrassing consequences, as in methods one and two. In other words, methods three and four, by preventing the expansion of any unrecorded pension cost, protectively put management on notice of the true costliness of any pension proposal.

Remember that I said at the outset that I thought that part of the accountant's opportunity and obligation, with respect to pensions, arose before any names were signed to any pension agreement. The accountant's responsibility is to point out to management the extent of the true cost of any proposed pension plan over a long period of time. The preceding discussion of the four basic methods of costing and paying for pensions shows that the accountant and actuary—with one reservation I will mention in a moment—can determine with reasonable accuracy that portion of cost which would be recognized annually over a period of years under each method. Only with this information is management in a position to measure the consequences of adopting a proposed pension plan, i.e., the effect upon the company in relation to its competitors both in and outside of its own industry and upon the economy generally. Only if the consequences are measured is management able with intelligence to illuminate pension negotiations and to adopt or reject a particular pension proposal.

Yield on Pension Fund Investments Affects Pension Costs

Once the benefits have been decided upon and the method under which the costs will be recognized has been determined, the reflection of these pension costs in the income accounts follows the pattern of other cost reflections in accordance with company accounting policy. Needless to say, good financial management will provide that any recognized pension cost not immediately payable to pensioners will be represented in funds with an insurance company or trusteed for the purpose of paying pensions when they come due. From there on the treatment of the funds becomes primarily an investment rather than an accounting problem.

However, the two are not wholly separable because the investment policy as reflected in the yield on the funds has a major bearing

upon the amounts the accountant must enter as cost. The bigger the yield on the invested funds, the less are the accruing costs of the benefits under the plan. For example, if the future service costs have been estimated on the basis of a 2½ per cent yield, each one-half percentage point increase in the yield will reduce those estimated costs by about fifteen per cent. If the past service cost is to be funded over a specified period, this cost also would be reduced although not so greatly. If, however, it is intended merely to pay the interest on this past service cost, the higher rate which must be paid will more than offset any gain through reduction in the principal of the past service cost. I only mention these matters to indicate that, although the actual investment of pension funds is not the function of the accountant, the results of that investment must nevertheless enter into the accountant's cost calculations.

Financial Statement Presentation of Past Service Costs

Having considered the income account treatment of pension costs, there then remains the problem of how to treat the unfunded past service amount. It has been proposed by some that the past service cost should be reflected as a liability in the body of the balance sheet, the offset being a reduction of net worth or some sort of deferred asset. Others would be satisfied to have it shown merely in a footnote as some sort of contingent liability. Still others believe—and I am one of them—that, since we are in what may be termed a "new era" as concerns such an item, it is preferable to move slowly and not reach hard and fast procedures until we have had an opportunity to live with the problem for a while.

These latter hold that we are in a period of change as regards old age benefits under both Federal and company plans. Any amount which might be set forth in the accounts would thereby achieve an appearance of finality that might prove to be unwarranted. For example, the benefits under most company plans are tied in with Federal old age benefits, and any increase in the latter will result in a corresponding decrease in the company's pension obligation. Up to this time, the accounting profession and the Securities and Exchange Commission have reached no conclusion as to a suggested disposition of this problem.

I do not wish to leave any false impression about the cost consequences of changes in the amounts of Federal old age benefits. While

an increase in these benefits will cause a decrease in company-paid benefits under many plans and so reduce the company's pension costs as such, it does not necessarily mean that there will be a reduction in the company's total costs. Taxes will have to be increased to support the increased public pensions or else a deficit will accumulate in the social security fund.

A Word on Employee Insurance Plans

So much then for what might be thought of as the accountant's particularized responsibilities to his company and to his profession in the matter of pensions. May I next say a few words about the problems involved in employee insurance plans? These problems, for the most part, are quite similar to those involved in pension plans. An estimate of the cost of proposed insurance benefits is just as important as the estimate of pension costs. In such cost determination the same factors must be considered, even though the problem of past service cost is less in the case of insurance since the benefits, except for life insurance, usually carry no retroactivity.

However, the problem of administration of insurance plans is usually more complicated because of the multitude of Federal and state laws which apply to any company having employees in a number of states. It is also complicated for a company dealing with more than one union. Achievement of reasonably uniform and fair treatment of all employees therefore requires seemingly different plans and different administration in different localities. Then, too, when a company is dealing with several unions, each union progressively wants "a better deal" than that to which other unions have agreed. This rivalry seems more intense in the case of insurance than in the case of pensions, presumably because the benefits could apply immediately to anyone on the current payroll, whereas pensions are more remote in time and will be paid only to those who survive in the service. Most people, I guess, place higher value on immediate gain than upon ultimate benefit.

Another difficulty is that of controlling the benefits to be paid. For example, it is not difficult to determine when a man retires and to make, for all time, the one calculation needed to determine the amount of his pension; but it may be difficult to determine when and for how long a man may be actually prevented from working because of covered illness. It is for that reason that many companies have pro-

vided in their agreements with employees that the company portion of the cost of insurance benefits shall be fixed at, say, so many cents per man hour worked. This provides a limit on its cost.

Pensions—and a Sound Currency

Thus far I have adhered rather closely to the accounting aspects of pensions and insurance, concerning which I believe the accountant has a particular responsibility. There are certain other aspects of pensions, the responsibility for which the accountant shares with management and, indeed, with all thoughtful citizens.

There is no doubt that large numbers of Americans in the past twenty years have renounced in considerable measure their independent responsibility to take care of their own individual needs, each in his own way. Instead they have turned to their government and to their pressure groups in efforts to get something for nothing from each other. They have sought—and with some success—to use the power of government directly or by delegation to take from the more productive and thrifty for the benefit of the less productive and less thrifty. As Kipling put it succinctly,

> "In the Carboniferous Epoch we were promised abundance for all,
> By robbing selected Peter to pay to collective Paul;
> But, though we had plenty of money, there was nothing our money would buy,
> And the Gods of the Copybook Headings said: 'If you don't work, you die.'"

These matters are pertinent to one's contemplation of certain possible long-term consequences of mass pensions established under the direct or indirect compulsion of government. Can you think of a handier and more popular device for power-hungry people to employ in obtaining support than promises to take good care of people when they get old—that is, later on? The "later on" is very important to the promiser; he gets the popularity he seeks *today*. As for paying up tomorrow—well, tomorrow is another day and, if necessary, the currency can be debased. It has been in other times and places. In this country it already has been debased by nearly one-half since social security was first promised to numerous voters.

This brings me back to my opening comment on deficit financing

and to one reservation I made a moment ago. The accountant's calculations of pension costs and his provisions for meeting them are meaningless except on the hypothesis of "honest money"—the money the buying power of which does not change very much over the years. Thus, if there is a continuing debasement of the money, with resulting price and wage inflation, then the dollar amounts of pensions based, as in many company plans, upon the wage level of the last ten years of service will be greater than were provided for during the earlier years of service at lower levels of dollar wages. The dollars set aside during these earlier periods therefore may prove insufficient and have to be made up at higher costs than were previously calculated. If no money is set aside in anticipation of pensions to be paid later, then the burden of paying the pensions when they come due will be still further aggravated.

In addition to this, as we have already seen in the recent history of both company and Federal old age benefit plans, the diminishing buying power of the dollar becomes a springboard for demanding still greater dollar pensions. The greater pensions which might be granted would naturally result, as I have already explained, in retroactively creating a new and bigger past service cost.

A Share in a Moral Responsibility

I suppose that nearly everyone, at least somewhere in the back of his mind, realizes that the maintenance of honest money is important to a country and to its welfare. What I am here pointing out is that, in the matter of pensions, the accountant has an especial reason for realizing and endorsing the need for honest money. The pension contracts, as I noted at the outset, deal with the whole life-spans of men and women.

Pension plans are arrangements announced in terms of dollars to be paid in the far future and to be provided for in the interim. Misery, unhappiness, and failure to provide the expected pension benefit in terms of the real things implicitly involved can be the results if money is not enduringly kept honest. Here then is an intangible but terribly important moral obligation that falls upon the accounting and management professions when they undertake to take care of people as they grow old and are no longer able to take care of themselves. It is an obligation to exert their utmost to make and to keep the dollar honest. I commend this last thought to your especial consideration.

SESSION II

MAKING THE OFFICE FUNCTIONS MORE EFFECTIVE

MONDAY AFTERNOON, JUNE 19, 1950

RAYMOND D. KINSELLA, Assistant Superintendent, Industrial Relations Department, Eastman Kodak Co., Kodak Park Works, Rochester, New York, *Chairman*

PAUL B. MULLIGAN heads the Management Consulting firm in New York City, which bears his name and has been engaged in the field of management engineering for nearly twenty years. In the earlier years of this period, he was connected with such companies as Procter & Gamble, American Chicle Co., Bendix Aviation Co., and also with Russell W. Allen Co., Consultants, and the Lamson Corp. Before the country's participation in World War II, Mr. Mulligan became Chief Industrial Engineer for Montgomery Ward Co. and later held a similar position with the Glenn L. Martin Co.

In 1943, Mr. Mulligan entered upon a period of service with United States Steel Corp. as a Staff Assistant in the Vice-President-Comptroller's organization where he developed clerical cost control techniques which were applied and refined in numerous subsidiaries. Through his present firm, he has since specialized in the clerical cost control area.

JAMES W. QUIGG is Manager of Supervisory Training, Air Reduction Co., New York, N. Y. First employed by his company in 1936 as Traveling Auditor covering field office procedures and personnel, he was assigned to the Field Office Management Department in the home office of the company in 1940 and remained on the staff of that department until 1947 when he assumed his present duties.

Before becoming connected with Air Reduction Co., Mr. Quigg was Accounting and Business Manager for the New York Museum of Science and Industry for a five year period and was engaged in public accounting during the years 1935 and 1936.

OFFICE OUTPUT CAN BE PLANNED, MEASURED, AND CONTROLLED

PAUL B. MULLIGAN

President, Paul B. Mulligan & Co.,
New York, N. Y.

THE improved planning and control of office productivity is a most appropriate topic today in view of your conference's theme—"New Frontiers for the Industrial Accountant." In solving the pressing problems of production and sales, management in general seems to have accepted the overhead expense of the office as a necessary evil and it has literally overlooked a new frontier for economy in business. This statement may be provocative to those executives who take pride in the efficiency of their offices. Nevertheless, such efficiency must be regarded as relatively minor when compared with the high productivity achieved by scientific management in the American factory. It is not sufficient to adopt mechanization and clerical work simplification. The best-equipped plant in the country could not produce effectively without the planning and control techniques of scientific management. The same is true in the office. Thus, we truly have a new frontier for the accountant.

In an earlier talk, I quoted United States Chamber of Commerce statistics to emphasize the scope of the clerical cost problem. These statistics are worthy of repetition today. During 1948, gross profits before taxes, dividends, inventory adjustments, etc., were 34.8 billions of dollars, or approximately 10 per cent of the gross corporate sales of 352 billions. Now, if your company conforms with this average, it means that you are endeavoring to secure a gross profit of $100,000 on each million dollars of sales. At an average annual salary rate of $2,500, the figure of $100,000 is equivalent to 40 clerical workers. Thus, our hypothetical company—or yours, if it conforms to the average—*must manufacture and sell a million dollars worth of goods for each 40 clerical workers merely to break even.*

This fact becomes even more alarming when we note that the trend for the last eighty years has been continuously in the direction of a

greater number of office workers in proportion to the number of people engaged directly in industrial production. Exhibit 1 illustrates the rapid growth in office employment from 1870 to the end of the last decade. Originally, the number of such workers was negligible, and this possibly explains their neglect at the birth of scientific management. However, the late nineteen twenties saw their number pass

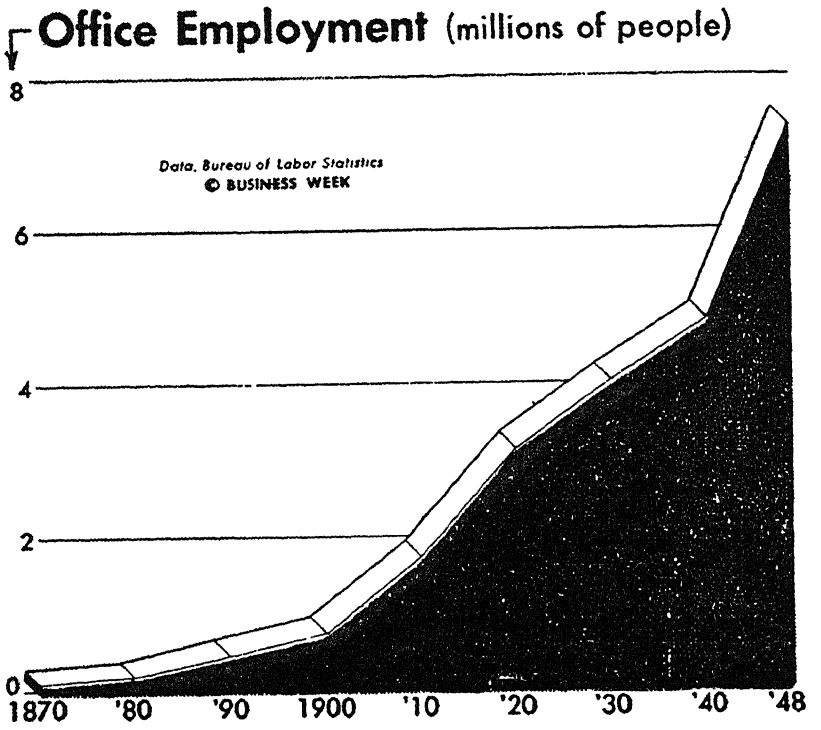

Exhibit 1

the four million mark, and even this figure was nearly doubled in the last few years. The trend went continuously upward despite the economic upheavals of depression and war.

One might suppose, perhaps, that this development was a reflection of the country's rapid industrial growth, but that is not the case. Exhibit 2 reveals that the number of office workers increased by 356 per cent in the years between 1900 and 1940 and that the number of factory workers increased by only 75 per cent. What was the cause

of this phenomenon? It would be wrong to attribute it to any single factor, since economic trends are usually the results of many forces. Certainly, commercial relationships became more intricate during that period. This and the maintenance of the very controls growing out of scientific management, itself, would have necessitated more clerical workers. However, experience indicates that a major contributing factor to this trend is the inadequate efforts devoted to controlling it.

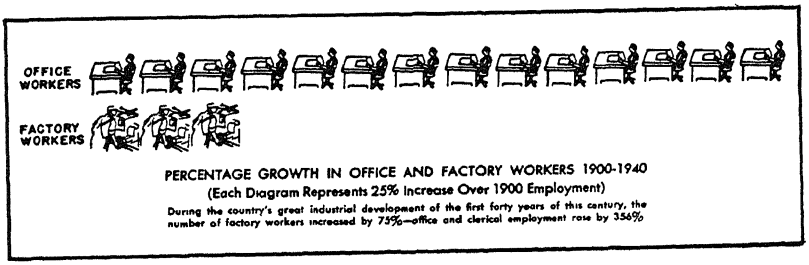
OFFICE WORKERS
FACTORY WORKERS
PERCENTAGE GROWTH IN OFFICE AND FACTORY WORKERS 1900-1940
(Each Diagram Represents 25% Increase Over 1900 Employment)
During the country's great industrial development of the first forty years of this century, the number of factory workers increased by 75%—office and clerical employment rose by 356%

Exhibit 2

It was mentioned earlier that office economy and effectiveness require the planning and control implicit in scientific management. This is accomplished by the clerical cost control technique. Essentially, this approach to the problem involves a combination of industrial engineering and accounting principles, since it is fundamentally the application of proven standard cost accounting methods to clerical work. Some of my earlier papers have emphasized the engineering phase of our work. It will be my purpose today, in view of the nature of this conference, to place greater stress on the accounting features.

Development of Standard Time Data

The mention of standard cost accounting presupposes the use of a "production yardstick." This phase of the technique is in the field of the industrial engineer, but it must be mentioned briefly before our discussion of accounting considerations. Exhibit 3 presents the results of a recent questionnaire circulated to several hundred corporations in an effort to determine current practices in the evaluation of clerical performances. It is interesting to observe that only 6 per cent of these organizations are using any scientific means of measuring their office production and that the great majority depend upon appraisals by supervisors and comparison among similar workers.

Even the 6 per cent figure is not dependable, since it could be distorted by the common loose definition of the term "time standard" when it is applied to clerical work. Many large corporations have developed the practice of exchanging so-called standard times on supposedly comparable office positions. Not only is it erroneous to as-

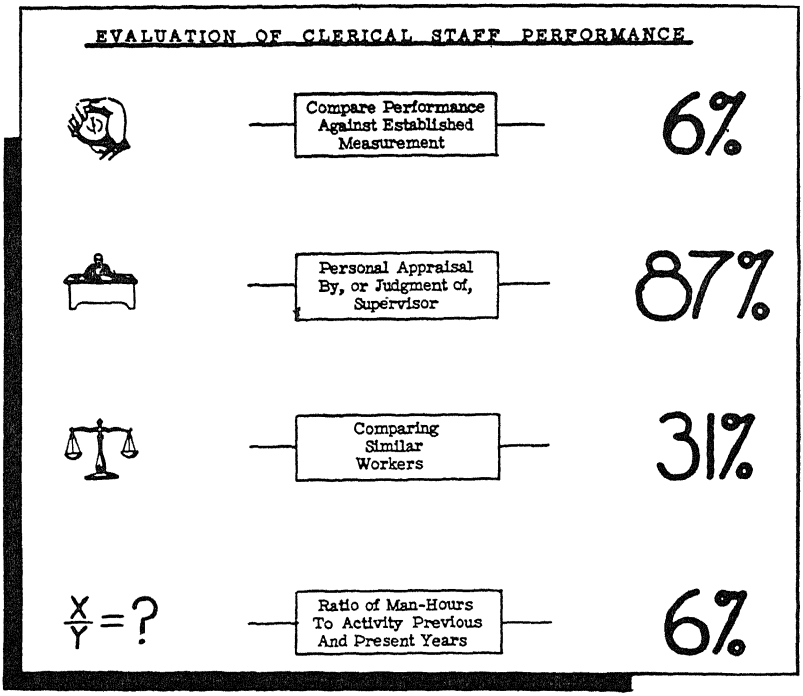

Exhibit 3

sume that two generally similar jobs are identical in two different companies, but a further error factor is introduced by the fact that such statistics are usually based on production averages and not time study. It should be unnecessary to point out the latter distinction. However, it is missed quite often, due probably to the fact that office executives are usually not too familiar with time study. An overall timing is in no sense a time study. It incorporates in the "standard" all of the errors of omission and commission which would be eliminated by the searching analysis involved in true time study.

Another variation of the practice questioned—and a natural consequence of it—is to use a given production rate as a "standard" until it is bettered. At that time, the new output is adopted as the standard. It is conceivable that this might occur a number of times until some enlightened executive used time study to determine exactly what the standard should be. Apparently the philosophy of work measurement has spread into many offices but its technical methods have been overlooked. The justification of half-way (or less) practices is that they are "better than nothing," and that time study installation is too slow. These statements are possibly true if the claimant refers to the use of direct time study throughout each office. However, they are invalid if standard time data are used.

Standard time data are engineered working time figures which can be used in combination to develop synthetically accurate and usable time standards for an infinite variety of tasks. The usual approach to the development of these data is through the use of ordinary time study practices. For our own purposes, we approach the work in our company through the use of motion pictures and detailed micromotion analysis. This method is not necessarily recommended for private companies, since it is costly and since it can be time-consuming for most ordinary purposes. Our position differs in that we are developing our data for a large number of clients and for a wide variety of applications. Thus, it is desirable that we have absolute precision in our work and that we have a pictorial record of the conditions prevailing at the time of the study. With these data in our files, it becomes possible for us to vary each standard to suit any particular circumstances which might arise in respect of a new client company and its problems.

Our company maintains a laboratory which conducts continuous research in the development of clerical standard time data. As each new office appliance is put on the market, we endeavor to photograph it under actual operating conditions and we subject the films to detailed analysis. For the purpose of this conference, we have prepared a brief film. It is made up of extracts from a number of different pictures made on order and billing operations in several separate offices. You will see the work performed on a teletype machine, on a Remington synchromatic machine which also creates a punched card, on a Burroughs accounting machine, and on an ordinary electric typewriter.

(Demonstration of project film)

Exhibit 4 illustrates the data that can be derived from films such as the one exhibited. It is the page from our standard time data manual which contains the statistics developed from the teletype machine film. Observe that the data are extremely detailed and that they can be used in an infinite number of combinations to suit the needs of any office using a teletype machine. For example, with the

TELETYPE

Order and Billing Transmission

Model 15-K S R used in connection with Model 14 Typing Perforator and Model 14 Transmitter Distributor

Manual Operation of Keyboard	
Type	.000064 Man-Hours per Keystroke
Spaces	.000045 Man-Hours per Space
Return carriage and line-up one line	.00018 Man-Hours per Line
Line-up	.00007 Man-Hours per Line
Carriage Shifts	.00018 Man-Hours per Shift
Miscellaneous Manual Standards	
Correct an error. Put hand into tape cutter, block out tape, and return hand to position for typing.	.00136 Man-Hours per Occurrence
Reach for papers in message box or other convenient receptacle, carry to copying rack, insert in rack, and prepare to type	.00219 Man-Hours per Occurrence
Turn over sheet on copy rack	.00105 Man-Hours per Occurrence
Adjust liner on copy rack	.00034 Man-Hours per Adjustment
Remove papers from copy rack and set aside	.00087 Man-Hours per Occurrence
Reach behind glass cover of machine, tear off carbon manifold (3 sheets), and carry manifold to position above keyboard.	.00124 Man-Hours per Occurrence
Clip manifold to typing source and set aside	.00138 Man-Hours per Occurrence
Move hand to tape sending box and return to keyboard	.00034 Man-Hours per Occurrence
Automatic Operation	
Insert tape in tape sender	.00194 Man-Hours per Occurrence
Type or space	.000045 Man-Hours per Keystroke or Space
Carriage return and line-up one line	.00009 Man-Hours per Line
Additional line-ups	.00007 Man-Hours per Line

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Exhibit 4

data on a keystroke basis, the problem of developing an accurate standard for a given office becomes merely a matter of analyzing typical messages for the average number of words, spaces, etc.

Application of Office Standard Time Data

The application of office standard time data parallels shop practice very closely. In each instance, the time study engineer works with a "blueprint" of the work to be done and he assigns the appropriate unit standard time for each operation to be performed. In the case of the office, the blueprint consists of a detailed flow process chart of the clerical routines such as that shown in Exhibit 5. This is drawn with a view to the adoption of the best working methods and it represents the standard procedure which the office force is to follow. The illustration shows the steps performed by a mail clerk in receiving, time-stamping, and sorting incoming sales orders.

In the construction of the flow chart, space such as that indicated by the triple boxes in the example should be allowed next to each operation for the insertion of work volume statistics and time values. Taking the sorting operation in the above case, it will be observed in Exhibit 6, which tabulates standard time data for this operation, that the appropriate unit sorting time is .00035 man-hours, since the clerk is using a table-top method and since she is sorting to eight classifications. This figure is entered in the right-hand box beside the operation on the chart as in Exhibit 5 and the typical monthly sales order volume is entered in the middle box. Simple multiplication then reveals that the monthly standard time for the operation is 1.32 man-hours. This practice is followed with every operation on the chart until measurement has been developed for the entire office routine.

The completed charts constitute a sequential picture of the work flow in the department. Thus, they depict the passage of papers from position to position and, in all likelihood, each clerk's duties will be scattered throughout the chart in accordance with the manner in which they fit into the overall procedure. If the load on each position is to be analyzed, it is necessary to tabulate the operations on the chart by position. This can be done very easily by having a typist copy from the chart to a job description for each position. Exhibit 7 is an example of how the duties of the mail clerk, discussed earlier, would be copied to her job description. It will be noted that the wording

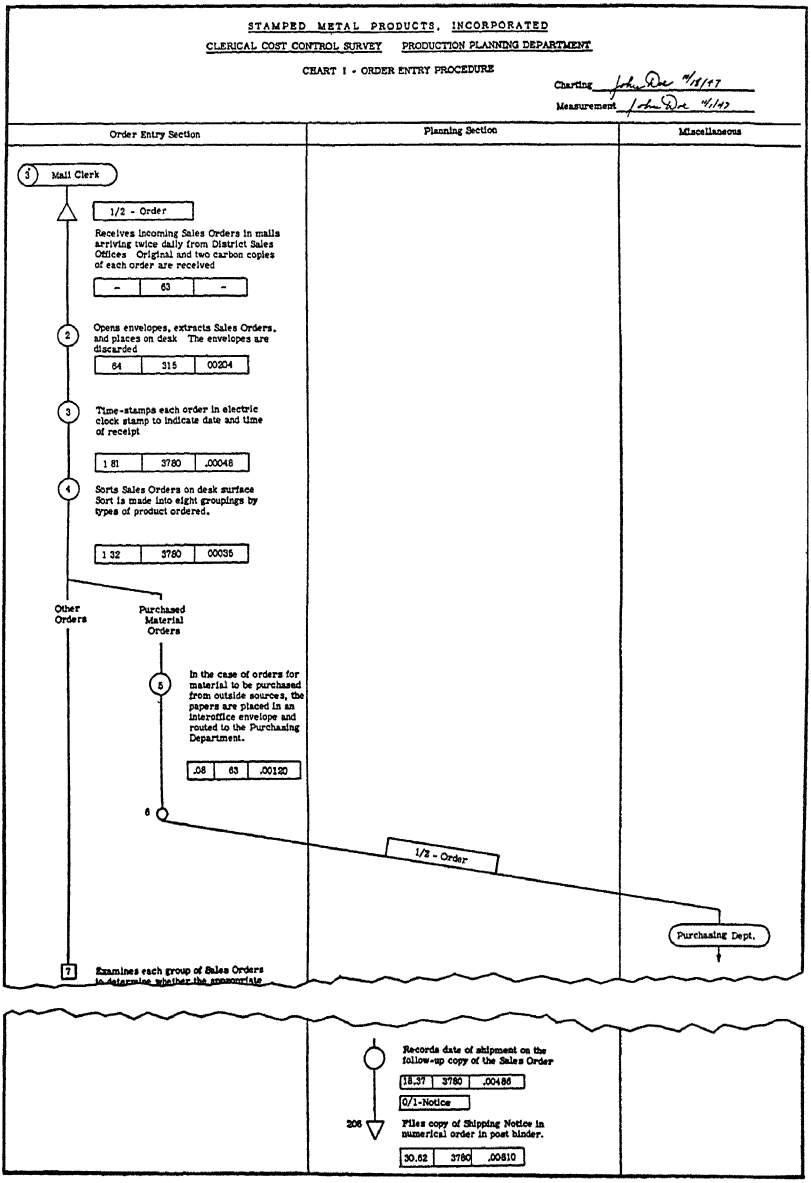
STAMPED METAL PRODUCTS, INCORPORATED
CLERICAL COST CONTROL SURVEY PRODUCTION PLANNING DEPARTMENT
CHART I - ORDER ENTRY PROCEDURE
Charting John Doe 4/18/47
Measurement John Doe 4/18/47
Order Entry Section
Planning Section
Miscellaneous
3 Mail Clerk
1/2 - Order
Receives incoming Sales Orders in mails arriving twice daily from District Sales Offices Original and two carbon copies of each order are received
- 63 -
2 Opens envelopes, extracts Sales Orders, and places on desk The envelopes are discarded
64 315 00204
3 Time-stamps each order in electric clock stamp to indicate date and time of receipt
1 81 3780 .00048
4 Sorts Sales Orders on desk surface Sort is made into eight groupings by types of product ordered.
1 32 3780 00035
Other Orders
Purchased Material Orders
5 In the case of orders for material to be purchased from outside sources, the papers are placed in an interoffice envelope and routed to the Purchasing Department.
.08 63 .00120
6
1/2 - Order
Purchasing Dept.
7 Examines each group of Sales Orders to determine whether the appropriate
Records date of shipment on the follow-up copy of the Sales Order
18.37 3780 .00486
O/1-Notice
206
Files copy of Shipping Notice in numerical order in post binder.
30.62 3780 .00810

Exhibit 5

of the operations is exactly the same as it appears on the chart. The work measurement statistics for each operation will be observed in the columns on the right-hand side of the form. The determination of the work load on each position now involves the mere adding of the monthly man-hours on the corresponding job description.

CLERICAL COST CONTROL STANDARD TIME DATA

Sorting 8½" x 11" Papers

Active Classifications Sorted	Man-Hours per Page Sorted: Table Top Sort	Straight Front Rack	Depressed Bins	Curved Front Rack	Machine Sort (Sortagraph)
1	—	—	—	—	—
2	.00027	.00029	.00029	.00031	—
3	.00028	.00030	.00030	.00032	—
4	.00030	.00032	.00031	.00032	—
5	.00031	.00034	.00033	.00033	—
6	.00032	.00036	00034	.00034	—
7	.00034	.00037	.00035	.00035	—
8	.00035	.00039	.00037	.00035	—
9	.00036	.00041	.00038	.00036	—
10	.00038	00043	.00039	.00037	.00059
11	.00039	00044	.00041	00037	.00060
12	.00040	.00046	.00042	.00038	.00060
13	—	.00048	.00043	.00039	.00060
14	—	00050	.00045	.00039	00060
15	—	.00051	.00046	.00040	.00061
16	—	.00053	.00047	.00041	.00061
17	—	.00055	.00049	.00041	00061

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Exhibit 6

It is rare that any job will show a proper load. We have run into cases of over-loads and under-loads, but the latter is far more common, for a very apparent reason. In staffing an office management has usually hired sufficient people to handle a work load which could not be measured heretofore. Therefore, it is reasonable to expect that the office would be over-staffed and that the work would be distributed inequitably.

The proper reallocation of the work is the final step. This is done by indicating on the chart what duties can be given to different posi-

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DEPARTMENT - Operating
DIVISION - Production Planning
SECTION - Order Entry
POSITION 3 - Mail Clerk

PROCEDURE JOB DESCRIPTION
SURVEY DATE
ANALYSIS DATE
REVISION DATE
REVISION DATE -

SIGNATURES
John Doe

CHART NO	OPER. NO	TRANS. FROM POS. NO	OPERATION DESCRIPTION	PER CENT OF MONTHLY TIME	MAN HOURS PER MONTH	AVERAGE UNITS PER MONTH	MAN HOURS PER UNIT
1	1		Receives incoming Sales Orders in mails arriving twice daily from District Sales Offices. Original and two carbon copies of each order are received.	-	-	63	
1	2		Opens envelopes; extracts Sales Orders; and places on desk. The envelopes are discarded	.4	.64	315	.00204
1	3		Time-stamps each order in electric clock stamp to indicate the date and time of receipt	1.0	1.81	3780	.00048
1	4		Sorts Sales Orders on desk surface. Sort is made into eight groupings by types of products ordered	.8	1.32	3780	.00035
			Total Effective and Allowance (16-2/3%) Time	87.5	151.4		
			Reserve Time	12.5	21.6		
			Total Available Man-Hours per Month	100.0	173.0		

Calculation of Budget Standard Unit Times

Orders Entered - Chart I - Operations 1 through 33

$\frac{99.83 \text{ Man-Hours}}{3780 \text{ Orders}}$ = .0264 Man-Hours per Order

Orders Changed - Chart II - Operations 1 through 15

$\frac{26.80 \text{ Man-Hours}}{115 \text{ Changed}}$ = .2330 Man-Hours per Change

Orders Cancelled - Chart III - Operations 1 through 12

$\frac{13.97 \text{ Man-Hours}}{36 \text{ Cancellations}}$ = .3881 Man-Hours per Cancellation

Constant Man-Hours - 10.80 Man-Hours per Month

Exhibit 7

tions in order to bring about a reasonable load based on a "fair day's work." The word "reasonable" is used because it is impractical to load each job up to absolute maximum. Sufficient free time must be allowed in each position to provide flexibility for absences, peak loads, unusual occurrences, etc. It will be observed in Exhibit 7, that the mail clerk's job has been loaded intentionally to only 87½ per cent of her maximum monthly working time.

Certain principles should be followed in the reallocation of duties. Obviously, functions should be assigned to assure a continuous and forward flow of material through positions, avoiding bottlenecks and back-tracking. It is also important to avoid the mixing of skill grades in any single position. For example, a stenographer's duties should not be included with those of a file clerk, since such a condition would necessitate the payment of a higher salary rate on that portion of the work requiring a lower degree of skill. The only exception to this would be in a small office, when avoiding the mixing of skill grades would necessitate creation of a new position.

Clerical Man-Hours Budget and Monthly Performance Report

No survey would be complete without giving consideration to fluctuating conditions. A means must be provided to perpetuate the advantages of sound work measurement even under changing circumstances. This is done by studying the contents of each job description to determine the variable factors affecting its work load and to develop a suitable control standard for each one. In the lower part of Exhibit 7, it will be observed that the mail clerk's variables were: (1) the number of orders entered, (2) the number of orders cancelled and (3) the number of orders changed. The total amount of the standard monthly man-hours devoted to each of these functions is divided by the appropriate volume factor to obtain a standard unit time for each. For example, in Exhibit 7, it will be observed that 99.83 of the 151.4 total standard monthly man-hours is devoted to entering orders. Dividing this figure by the volume of 3780 orders per month, a standard unit time of .0264 man-hours is obtained.

These standard unit times are preprinted on a work-sheet which will be used by the office manager henceforth in relating the size of his office force to the volume of work to be handled. This is illustrated in Exhibit 8, Monthly Budget of Clerical Man-Hours. It will be noted in column 4 that the work load has varied somewhat from

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MONTHLY BUDGET OF CLERICAL MAN—HOURS

DIVISION Production Planning DEPARTMENT Operating MONTH October 1947

POSITIONS AND FUNCTIONS	BASIS OF MEASUREMENT	1 STANDARD UNIT TIME	2 EST MONTHLY VOLUME	3 EST MAN HOURS	4 ACTUAL MONTHLY VOLUME	5 STD MAN HOURS	6 ACTUAL MAN HOURS	7 OVER (RED) OR UNDER STANDARD	8 % EFF
3 - Mail Clerk									
Orders Entered	Number of Occurrences	.0264			3809	100.6			
Orders Changed	Number of Occurrences	.2330			98	22.8			
Orders Cancelled	Number of Occurrences	.3881			20	7.8			
Constant Times						10.8			
Totals						142.0	157.8	15.8	90.2
4 - Calculator									
Orders Entered	Number of Occurrences	.0480			4000	192.0			
Changes Calculated	Number of Occurrences	.0356			625	22.2			
Unentered Orders Calculated	Number of Occurrences	.0435			75	3.2			
Sales Controls Posted	Number of Occurrences	.0095			4700	44.7			
Constant Times						1.2			
Totals						263.3	532.0	268.7	49.3
GRAND TOTAL FOR DIVISION						3491.3	4668.5	1177.2	74.8

Exhibit 8

that prevailing at the time of the survey and that the number of orders entered during the month to which the example applies was 3,809 instead of 3,780. Through multiplication and entry of the extensions in column 5, it is determined that the mail clerk produced 142.0 standard man-hours of work that month. Since her actual attendance time was 157.8 man-hours, her effectiveness was 90.2 per cent. This was a good performance, since her assigned job load was 87.5 per cent, and it indicates that she used some of her reserve time for the purposes for which it was allowed.

A different situation will be observed in the case of the calculating machine operators (also dealt with in Exhibit 8) who achieved an effectiveness of only 49.3 per cent, since 532.0 man-hours were devoted to accomplishing only 263.3 standard hours of work. This is an area warranting investigation and correction.

Space has limited Exhibit 8 to the illustration of only two positions, but it is a simple matter to visualize how all of the jobs in an office could be measured periodically in a similar manner and how the figures provided could be totaled to give an analysis of the entire operation. In this case, 4,668.5 man-hours were spent in performing 3,491.3 standard hours of work, and the effectiveness was only 74.8 per cent, reflecting the influence of the low productivity of the calculating machine operators.

It was stated earlier that Exhibit 8 was a work-sheet for the office manager. All of the companies using the clerical cost control technique require the monthly preparation of this form as the basis of a report to be submitted to top management, which is illustrated in Exhibit 9, Budget Performance Report. On the left side, the overall man-hour analysis is repeated and the performance is analyzed in dollars on the right side. It will be observed in Item 8 that the actual payroll cost for the month amounts to $7,734.30. The formula in Item 9 indicates the manner in which the standard cost is calculated. Simple subtraction develops a net variance of $2,280.89. This latter figure is subsequently analyzed under Item 11 by all of the factors contributing to it. This illustration is quite a simple one and different offices might have certain special factors which might have to be taken into account. However, the original survey would reveal such factors and it is not difficult to incorporate them when the budget performance report is first set up.

In my opening remarks I included the statement that the clerical

BUDGET PERFORMANCE REPORT

DEPARTMENT Operating — SECTION Order Entry — MONTH October 1947

1. HOURS PAID FOR			
a) Regular	4800.0		
b) Extended	-		
c) Overtime	100.0		
Total		4900.0	
2 HOURS PAID FOR BUT NOT WORKED			
Vacation	200.00		
Illness	30.00		
Holidays	-		
Other	1.5		
Total		231.5	
3. TOTAL HOURS WORKED		4668.5	
4. STANDARD HOURS OF WORK PERFORMED (From Col. 5, Page 2)		3491.3	
5. OVER (red) OR UNDER STANDARD HOURS		1177.2	
6. PERCENT EFFICIENCY (Line 4) / (Line 3)		74.8	

		Month	To Date
7	AVERAGE HOURLY BASE RATE (Line 8a) / (Line 1a)	$1.562	
8.	ACTUAL PAYROLL		
	a) Regular	$7500.00	$30355.80
	b) Extended	-	
	c) Overtime	234.30	745.05
	Total	$7734.30	$31100.85
9	STANDARD COST (Line 4 x Line 7)	5453.41	16611.80
10.	NET VARIANCE	$2280.89	$14489.05
11.	ANALYSIS OF VARIANCE		
	Over (red) or Under Standard (Line 5 x Line 7)	$1838.79	$12477.80
	Overtime Premium (Line 1c x Line 7) / (2)	78.10	578.10
	Hours Paid for but Not Worked	361.60	1406.40
	Unaccounted	2.40	26.75
	Total	$2280.89	$14489.05

	No. of Personnel	No. of Hours
Supervision (not measured)	3	
Authorized Unfilled Positions		
Filled Positions	27	

Savings due to unfilled positions:

	Month	To Date

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Exhibit 9

cost control technique involves nothing more than the application of proven standard cost accounting methods to clerical work. This contention is supported by the example which has been given.

Effecting Clerical Cost Control Economies

Something must be said about the proper action to be taken when a survey results in the uncovering of excess personnel in an office. It is urged strongly that no clerical cost control survey be undertaken without assurance to all concerned that no employee will lose his job as a direct result of it. This promise should be adhered to, in all fairness to the employees. Thus, the installation of the new work loads should be scheduled to conform with normal turnover or the transfer of people to other departments. About the remaining employees, it is important to recognize that they have *not* been subjected to a "speed-up." That word is defined as the practice of increasing production rates so as to require employees to work at unreasonable rates of speed. It is true that the remaining clerks in our case may be required to assume some additional duties, but it is done on the basis of an accurate and reasonable determination of a "fair day's work." If any other result is achieved, the technique will have been misused.

Our experience has been that both office supervisors and workers like the idea of working on a measured basis when they learn what the technique is—and that it will be used fairly. This may seem contrary to normal human behavior, but it is verified by the following statement from one company:

> Not a sour note was heard from the entire organization, for the "expendables" had been taken care of and the remaining employees were assured of job security. As a matter of fact, the remaining people realized that they had greater security than before, for all of them must have seen the obvious "water" in the size of the organization and undoubtedly the thoughtful ones must have wondered what the odds would be when the day of reckoning was reached. But by carefully squeezing out the water, not dumping it, we left no doubt but that every remaining person had a balanced assigned job to do with no fear of layoff.

In analyzing our experiences, I cannot avoid the opinion that the bigness of business has caused us to overlook an important human factor. People work for more than mere money. They work for an inner satisfaction and they take a deep pride in their personal con-

tributions to society—if they are allowed to. This incentive is lost when people drift into becoming merely numbers on the payroll, which is the unintended but unfortunate result in so many cases. Clerical cost control can be used to reverse such a trend, because under it the employee is aware that management knows the job that he is doing.

I should like to emphasize the important point of personal dignity. As members of management, we have a grave responsibility to recognize concerning it. When people are deprived of proper recognition, they seek to regain it in a mass effort. The strength of our heritage springs from our ancient custom of working, insofar as possible, as many individuals—*but in unison.* This is the employee relations side of clerical cost control.

Practical Advantages of Clerical Cost Control

There are only two general types of work in our experience to date which should be regarded as outside of the scope of measurement. Where the job is primarily creative, such as the case of a design draftsman, it is impractical to attempt measurement. On the other hand, when an employee is retained because his presence is needed at a given location regardless of work volume, there is no purpose in measurement even though it is possible to apply it. For example, there would be no advantage in determining the work load of a receptionist.

In other words, by far the greater portion of office work is suitable for measurement and standardized control. Consider the advantages to both employer and employee that can be opened up in this manner. The following list of principal benefits should make this clear:

(1) *Office costs* can be stabilized and related permanently to workload—regardless of fluctuations. There is no longer any need for conflicting opinions as to whether more or less help is needed, and peak-loads can be anticipated and scheduled.

(2) *Systems improvements* can be evaluated before installation and costly mistakes can be avoided. There have been a surprising number of cases where a seemingly desirable procedure change proved to be more expensive than existing practices. In the same connection, the advisability of a capital investment in office equipment can be determined before the outlay.

(3) *Comparison of efficiency between offices* is possible. With both functioning on a standardized basis, it becomes possible to compare the relative management efficiency of each office, e.g., it is possible to know whether the personnel department is run more efficiently than the purchasing department.

(4) *Cost of each report and document* can be determined readily, since each step in its preparation can be evaluated. It is not unusual for a statistical report to be eliminated when its cost is compared with its usefulness.

(5) *Employee compensation* can be made more equitable. Present job evaluation plans recognize the skill level, or quality, of the work performed, but measurement provides a means of determining the quantity of work turned out by each clerk.

(6) *Planned and scheduled operations* can provide obvious benefits in economy to management and service to customers.

(7) *Burden of supervision* can be lessened through the use of measurement and control.

(8) *Supervisory training* is accomplished on a very practical basis in the few short weeks that an office supervisor spends looking at his activities from the viewpoint of modern management practices. Some companies that have applied the technique consider this advantage great enough to warrant their dropping the term "clerical cost control" in favor of "supervisory training program."

(9) *A complete technique for office analysis* lies in the manner in which a survey is conducted. The charts provide an audit of procedures and bring out clearly their degree of economy and effectiveness. The job descriptions can be used for a job evaluation program and the final cost controls have many important uses, such as planning, scheduling, control, employee compensation, etc. Heretofore, these matters would have been the subjects of separate surveys—conducted possibly under separate supervision in larger companies.

These are the fruits that grow in the land beyond the boundary of this "New Frontier for the Industrial Accountant." The wide adoption of the clerical cost control technique can contribute vastly to our country's living standards in peace and to the conservation of manpower in war.

INCREASING OFFICE PRODUCTIVITY THROUGH TRAINING

JAMES W. QUIGG

Manager of Supervisory Training,
Air Reduction Co., Inc.
New York, N. Y.

ONE of the critical problems that faces American industry today is the control of the quality, cost and quantity of production. The usual approach to the solution of this problem is through the tightening up of existing procedures, elimination of waste in materials and time, simplification of work methods, processes, etc. In my company —Air Reduction—we are, of course, doing these things, but we are also making an additional approach through the education and training of our employees.

Air Reduction's training program comprises two distinct areas—first, the area of broad basic training in fundamentals and, second, the area of specialized training in specific departmental activities. In both of these areas, primary emphasis is placed on training supervisory personnel. The reason for this emphasis on training supervisory personnel will be apparent when it is explained that the goal of our top management is to get every member of our organization so oriented in his economic life that he will want to do the best work he is capable of doing. If we can achieve this objective, we feel certain that improving the quality, cost and quantity of production in every phase of the company's operations will follow almost automatically.

To effect such orientation is a large order. It requires recognition of four basic factors: (1) the establishment of a sound human relations program; (2) application of the principles of sound human relations; (3) application of the principles of sound management, and (4) recognition by each member of our organization that our customer is our boss, i.e., recognition of the fact that the customer's order is the first step in the cycle of our economic existence and that without the customer's order we do not have a business and we do not have a job.

The responsibility for working toward this goal of having each member of our organization want to do the best work he is capable of doing rests squarely on the shoulders of our management. The concept of who comprise management varies widely. In Air Reduction, management includes every supervisor. It is company policy that supervisors are part of management and are expected to exercise their authority and responsibilities as members of the management team.

TRAINING IN FUNDAMENTALS OF MANAGEMENT DEVELOPMENT

In the area of broad basic fundamentals, on which I shall speak first, our program of employee education and training—we call it "management development"—therefore begins with management itself. It actually began with top management because our first management development group included the chairman of the board, the president of the company and all other senior officers. Subsequent groups were well diversified in executive department representation. The group meetings are conducted on a conference rather than on a lecture basis. Each group is limited to twelve members in order to facilitate across-the-board discussion by all and meets once a week for eighteen weeks. The meetings are scheduled to last approximately two hours, but most of them run to two-and-one-half hours. The scope of the program is confined to four general areas: economics, management principles, problem analysis and solution, and human relations.

The Economics of Customer Satisfaction

In the area of *economics* we explore the purpose and function of business in a competitive economy. We do this by discussing direct competition between similar products made by our company and various other companies and indirect competition offered by other businesses. We explore and stress the fundamental fact that the customer's verdict of the relative value to him of our products or service, in comparison with similar products or services offered by our competitors, sets our product standards of quality and price. Also, we discuss and relate to our own industry the competition for workers and for capital.

In the course of our discussions, we examine departmental operations and problems and the effect of various incidents on our customer relationships. For example, we explore with supervisors the chain reaction set off by the apparently simple matter of interpreting a customer's order for six tips as 6 welding tips just because that was what the customer ordered the last time. The order specifies "rush," so it is entered immediately. The six welding tips are hurried off to the customer, the shipment is billed and posted to the accounts receivable ledger and to the stores inventory control. All that remains (on a routine basis) is for the customer to remit for the invoice when it is due.

However, the next day we receive a telephone blast from the customer. We sent him *welding* tips when he wanted *cutting* tips, and our failure to interpret his order properly has bogged down an important job on which he is working. The delay is costing him money and he leaves no doubt in our mind as to just what he thinks of our service. Of course, we rush six cutting tips to him by special delivery—at our expense—and have him return the six welding tips—at our expense. We invoice the customer for the cutting tips, and post the invoice to the accounts receivable ledger and to the stores inventory control. When the welding tips returned by the customer are received, we check them into the storeroom, prepare a credit memo in multiple copies, post the credit memo to the accounts receivable ledger to wipe out the original charge and enter the six welding tips on the stores inventory control as a receipt to offset the original withdrawal.

What Did Happen?

With this information before us, we propound certain questions to our group. After deducting the cost of all the extra paper work involved and the extra transportation charges, how much profit was left on this transaction? And what was the effect on our relationship with our customer? Now these are two important questions but, from the standpoint of our management development program, a more important question is: Why did the incident happen in the first place? So we traced it to the order desk, where the order was originally received, and tried to find out what happened there.

A bit of digging unearthed the fact that our order clerk was in a

very disturbed state of mind because a position as junior salesman had been filled by a man from another location. Since the usual promotional route is from order clerk to salesman, it was entirely natural that our order clerk was disturbed because the promotion had not been offered to him. The fact is that the order clerk had been considered by local management for the position of junior salesman, but the job was given to another man who was eligible and who had more product experience and order desk training than did our order clerk. However, management failed in its responsibility to explain to the order clerk the reason why he had not been selected for the particular job. When the explanation was made, the order clerk understood and was in complete agreement that the other man was better qualified. The order clerk's mental attitude straightened out and he tackled his job with renewed interest.

Here we have a good illustration of how management, itself, can and does create many of the problems which it must subsequently solve. The *prevention* of problems of this general type is important in maintaining customer goodwill and is therefore a basic part of the area of economics about which we are talking. This illustration also points up the reason why we place emphasis on the training of our supervisory personnel, who are part of management.

Through discussion of such case histories, we secure agreement from the group members that our company's competitive position is maintained through the *controls* that are exercised at *every supervisory* or management level. Finally, by analysis of various comparative data pertaining to our operations over a period of years we determine what happened, why it happened, and what the effect was, what we can do to further the favorable aspects and lessen the unfavorable ones.

From Facts to Policies—and Back Again

In the next of the four areas of basic fundamentals, we review the *principles of effective management* and make a searching and sometimes painful examination of how these principles are applied and followed in the sphere of each individual's responsibility. We examine critically the subject of company policies. This examination touches upon an area of considerable vagueness. So we attempt to develop an understanding of:

1. Why policies are necessary.
2. What a policy represents.
3. What makes a policy.
4. Who makes a policy.

Through discussion of the functions that are performed by each management level, we develop an understanding of the relationship that should exist between the principle inherent in the policy and performance of the functions relevant to the policy. From the group members we secure examples of administrative policy stipulations that have proven unwieldy or troublesome in the performance of the functions involved. Analysis of such policies invariably indicates that management at the particular policy-making level did not have *all the facts* pertinent to the situation and that the resulting policy was based on incomplete data.

As a result of such analysis, we are able to ask the $64 question: Who is responsible for providing management at each policy level with the facts upon which to formulate sound, logical, workable policies? Through this question and the discussion that always ensues its asking, we develop acceptance of the fact that each group member has a definite responsibility in the policy-making function. The emphasis here is on making every member of management understand the important part he can play in the formation of company policy and his responsibility to perform his part. This he can do by pumping upward through regular channels of communications data pertinent to his area of operation, data which upper management must have if it is to make sound decisions which he, in turn, can administer intelligently and efficiently.

In line with our belief that a company is only as strong as the sum total of the developed potential of all its employees, we are training our supervisors to develop their personnel in this phase of industrial democracy at work. Line, staff, service and control functions are examined, defined and related to the activities of each group member and to the organization as a whole. The clarification of these functional relationships is important because there is an astonishing lack of understanding on this subject, particularly as to the real purpose of the staff, service and control functions and the value that can accrue through a fuller utilization of such important auxiliaries.

Finally, organizational problems which are of direct interest to the group members are examined in relationship to management principles. Departmental weaknesses in organization and management are thus highlighted for corrective action. And we do take action.

The Mutuality of People and Problems

In the area of *problem analysis and solution,* the third of our four basic fundamentals of management development, various and diversified case histories supplied by group members are examined in detail. In personnel problems such analysis serves to highlight the fact that poor employee attitude is merely a symptom—that it is a *result* of various underlying causes. By analysis of facts through group discussion, we get the group members to accept the principle that control of employee attitude is an essential part of a supervisor's job. To help in this respect we introduce what is known as the "problem solving pattern" and the "problem-solution-reasons-results pattern." The former is an excellent tool for solving *any kind* of a human relations problem and the latter is practically a must if a supervisor wants to get his problem solution across so that it sticks.

Since people and problems are practically synonymous, the group members receive intensive drill in the use of these two patterns throughout the remainder of the conference meetings, with special emphasis on the first factor of our problem-solving technique—to get *all* the facts. One of our big problems is to get people to awaken to facts and to distinguish between opinion and fact and to weigh and evaluate facts. Trying to teach people to get *all* the facts is, perhaps, the most difficult problem of all.

Top Subject: Human Relations

The group work in the three general areas just covered provides a basic approach to the last broad training area, that of *human relations.* Here we get into an examination of the basic wants and urges of people generally. We develop a pattern of the average man's basic sources of satisfaction, his basic wants and urges, such as self-preservation, opportunity, the urge to get and to own, recognition—economic and social—family, friends, recreation, etc. Through case

histories we show how on-job attitudes are affected by these basic wants and urges.

We demonstrate how a man's *getting* the things he wants and values develops a *positive* attitude and we show how his *failure* to get those things he wants and values develops a *negative* attitude. From these case histories we develop this principle: "It is only common sense to refrain from doing those things that unnecessarily threaten a person's basic wants and feelings and *to do* everything possible to build up a person's sense of satisfaction."

The balance of our conference meetings are devoted to the practical application of this principle on a daily basis on the job. Various basic "tools" are provided and the supervisors are drilled in use of them.

In our final sessions on basic fundamentals, we tie the four general areas together by demonstrating that any action in one area has an immediate reaction in all the other areas. Thus, we try to develop a fuller understanding of cause and effect, an understanding of the things that can make the production of our people go up or down according to the way they feel—and an understanding of some of the things, at least the relatively obvious things, that we as members of management can do to help our people control such variations. The degree to which we are successful in helping our people through our understanding of what makes them "tick" is the degree to which we can assure success of the specialized training part of our program, of which I shall now speak.

SPECIALIZED TRAINING PROGRAM IN OFFICE ADMINISTRATION

Air Reduction's specialized training is as yet limited to certain areas of sales, manufacturing and office administration. To conform with the subject of this paper, I shall discuss the last area.

The Clerical Man-Hours Budget

As in the broad basic area, primary emphasis in this specialized part of our training program is placed on the supervisor who, through application of the principles of sound management, controls the capacity and will-to-produce of the employees under his jurisdiction. Since the office manager's prime responsibility, as a member of the

management team, is control of the quality, quantity and cost of his production, we provide him with a tool by which he can evaluate his clerical work load and control his clerical work costs.

This tool is a clerical man-hours budget tailored to meet his major needs and easily adaptable to include his minor needs. It is based on an accurate analysis of work performed by every clerical employee and the development of a standard unit time for each kind of work included in a job. These analyses are summarized functionally, job by job and by department, and the resulting "tool" provides the office manager with a rather exact picture of his operations, function by function, job by job, person by person, and by departments. It shows the standard hours of time required to do a job versus the actual time taken by the personnel on the job. Inequities are thus highlighted for analysis and corrective action.

Driving Home the Importance of Clerical Cost Control

This part of our management development program is called "supervisory training in clerical cost control" and we get quickly to fundamentals. We gain acceptance of the fact that clerical labor cost is a major factor in business and that it represents a large part of the selling expense and cuts deeply into the margin of profit. We ask a district office manager to compare the number of employees required to manufacture oxygen and acetylene in his district with the number of clerical employees under his jurisdiction. In many locations the number of clerical employees will exceed or be close to the number of employees required to manufacture the products.

From this comparison we are able to drive home the fact that an hour of clerical labor is as much a commodity in our business as is a cylinder of gas, a cutting tip, or a can of carbide. Using this commodity comparison basis, we point out that if an office manager finds he can operate with one less employee at an average salary rate of $175 per month, the resulting annual saving in clerical cost is more than the profit on the sale of several thousand cylinders of oxygen.

To earn such profit through savings in clerical labor costs requires the exercise of sound management on the part of the office manager, and the question of what constitutes sound management ties right in to the fundamentals stressed in the first part of this paper. It has been said that the profession of management is made up chiefly of

men who are willing—in return for a chance to get ahead and a fair remuneration—to step up and take the responsibility for getting the job done. Therefore, in return for a chance to get ahead and a fair remuneration, the office manager, who is a vital part of management, must conduct the affairs of his office in such manner as to secure maximum production at minimum expense.

Development of Sense of Security and Job Satisfaction

To accomplish this management goal, he must know both the volume of work that constitutes a fair production output for each job and the man-hour labor cost to produce it. He must know also the best management methods by which he can obtain the required production from his employees, who are not machines that can be automatically geared to produce a given quantity but are variable human beings who must be recognized and treated as such. In the final analysis, the dual objective of maximum and economical production can be accomplished by the office manager only through the interest and cooperation of his personnel—through *his* stimulation of *their* will to produce.

There are several methods in use today that have been developed for the purpose of increasing productive output of employees. One method is to rule by force. That method means: produce or get out. Some other methods also tend to ignore human values and are neither economical of cost nor conducive to good morale. Happily, there are methods whereby management not only attains the required production but also builds up or develops employees so that they are genuinely interested in their work and are ready and qualified to assume more important responsibilities when opportunity for advancement occurs.

The first step in such a management method is to make sure that the work load is distributed fairly and that the employee can, with proper training, handle the volume of work assigned to him. Second, management should recognize that, while the average employee instinctively wants to do a good job and to be proud of it, just as instinctively that employee wants and needs peace of mind in his job. He needs a feeling of security, job satisfaction and recognition. In other words, the employee wants to know where he stands in the eyes of management. Job knowledge and job performance,

coupled with a sincere appreciation by the office manager when a job is well done, give the employee a satisfaction and a contentment that are of prime importance and that stimulate the inherent desire to do an even better job. Doubt, fear and restlessness are replaced by a sense of security and a feeling that he or she is truly a part of our company.

Inadequacy of Past Performance as Production Measure

In order that the office manager may exercise adequate administrative control, he must apply a definite means of measurement to determine the load volume that constitutes the production requirement in each job. In the past, our office managers were not provided with such a measurement technique. Lacking it, they relied on experience, which means that in the majority of cases, consciously or unconsciously, the past performance of an employee or a group of employees was accepted as a means of measurement. Actually, the volume of work produced per employee may have been above or below a reasonable average.

This, in turn, means that such past performance often became the production standard used by an office manager in preparing his personnel requirement budget for presentation to his management. Management checking of such budgets is often on the basis of company-wide averages and volumes and, here again, past performance becomes the guide. The use of past performance for controlling clerical expenses is unsatisfactory for reasons mentioned above and because: (1) an office manager desiring to satisfy his management may understate his requirements, with the result that he finds it necessary to incur overtime expense and possibly to do considerable detail work himself, thereby neglecting his prime responsibility as an administrator, or (2) he may overstate his requirements, feeling that he must have a reserve or cushion to meet some unforeseen condition or emergency.

However, through the application of the technique of clerical cost control, an office manager can avoid reliance on the past performance basis. Instead, he can establish definitely and accurately the number of man-hours of labor required to handle any given volume of any kind of clerical work. Obviously, the successful application of any such technique cannot be confined solely to measurement of produc-

tive output. It must give full weight to human values and satisfy the inner needs of the individual. It should so stimulate interest that the employee will strive for improved performance and will regard an increase in salary as a reward for accomplishment rather than an inducement to work harder.

Enlightened management now generally accepts the fact that the problem of increasing production cannot be solved by pay increases alone. Through clerical work measurement and clerical cost control, it is easy to develop and assign a fair work load to each position and to give credit where credit is due. Such consideration of the individual will stimulate his interest which, if properly cultivated, will in turn create a genuine enthusiasm. Increased production of work will follow naturally.

Work Load and Efficiency Determination; "Time Journal"

Furthermore, the office manager can rate accurately the efficiency performance of each employee and, by proper evaluation, can reward an employee accordingly. The realization by an employee that his performance rating is known and will be used by his office manager is, in itself, an incentive to a better performance.

Thus, through supervisory training in clerical cost control, the office manager is trained in the practical application of a management technique employing sound measurement standards, based on accurate time studies of operations performed at average speed, plus allowance for fatigue, personal needs, etc. There are in the average district office approximately 1,200 clerical operations, all of which have been timed and thoroughly tested. Through the use of the resulting standard unit times, a satisfactory load can be established for each position.

What is a satisfactory load? A satisfactory load is not based on the ability of an employee to produce. Rather, it is the number of units of work at the applicable standard unit time rate that can be produced by an *average* employee at the rate of six standard man-hours of work per eight-hour day. With the addition of certain allowance factors for fatigue, personal needs, etc. the result is interpreted as a standard minimum operating efficiency of 87.5 per cent. An above-average employee will naturally perform an operation in less time than is allowed by the standard unit time for the operation. In

such cases the standard unit time remains fixed and the above-average performance is reflected in a higher rating of efficiency for the individual, provided the available excess man-hours are utilized in some other positions or type of work.

In order to give credit to the proficiency of an individual, a simple "time journal" is used to record all work done by an employee beyond the regularly assigned duties of the position. This means that if employee "A" develops proficiency to a point where time is available to assist employee "B," "A" receives full credit for any work performed for "B" and an efficiency rating of 95 per cent may result, instead of an otherwise possible 80 per cent. A "time journal" form is maintained by each employee for each calendar month. On this form the employee records daily the man-hours of time sold to other positions, time purchased from other positions, time spent on special assignments, and also time devoted to Airco Association activities, time lost due to illness, early closing of office, holidays, etc.

Each employee receives full credit for time spent in assisting others, training others or being trained on work other than his own. An employee who receives assistance is charged with the purchased hours and is thereby penalized to the extent of them. Thus it is easy to compute the actual man-hours spent on a given position. Multiplying the current volume of work units by the applicable standard unit time gives the standard man-hours required to process the work load.

Goals of Training in Clerical Cost Control

The broad objectives of supervisory training in clerical cost control are:

(1) To provide each office manager with and train him in the use of a monthly budget of clerical man-hours based on accurate, logical and reasonable standards to enable him to:
   (a) determine the man-hours of labor required for any clerical operation under his jurisdiction.
   (b) establish a proper work load for each clerical employee.
   (c) eliminate inequities in clerical work loads.
   (d) determine which employees have the more efficient production performance, thus affording sound basis for

selection and retention of the better personnel plus development of potentially valuable personnel in need of training, guidance or reassignment of duties.

(e) achieve simplification of work through elimination of unnecessary job operations.

(f) secure overall performance efficiency by elimination of excess time through reassignment and consolidation of job operations and reduction through transfer or normal turnover of excess personnel or personnel who do not maintain the performance standard established for the job.

(g) achieve more efficient utilization of available man-hours and reduction of non-productive man-hours.

(h) administer his office with overall efficiency and economy.

(2) To develop and stimulate job interest, knowledge and performance on the part of each employee. A good employee knows that job proficiency plus work interest automatically build toward job security and advancement.

(3) To provide a standard for evaluating supervisors for advancement. The manner in which supervisors use the standards provided by the monthly budget of clerical man-hours affords a sound basis for evaluating their administrative capacity.

(4) To establish the clerical cost of preparing numerous special reports. In many cases 20 to 30 per cent of the time of two or more clerical employees is required to perform such work. With accurate costs available, appraisal can be made of the value of the results obtained versus the cost of data preparation.

APPRAISAL OF THE MANAGEMENT DEVELOPMENT PROGRAM

Since the value of any activity must be appraised on the basis of the results obtained, it is only reasonable to ask "What concrete results have been obtained through this management development program?" Perhaps the best way to approach the answer to this question is to look at the separate parts of the program, rather than at the program in its entirety. This approach is doubly advisable because only a few

locations have had both the broad basic training in fundamentals and the specialized training in specific departmental activities.

Results of Training in Fundamentals

In the fall of 1948 the part of the program related to broad basic training in fundamentals was started at one of our plants which employed several hundred hourly workers. Within a few months, and before all of the supervisory personnel had participated in the program, production began to improve, costs were getting better, and all around performance was on the up grade. All management personnel at this plant have now completed the basic portion of the management development program. New production records were set, costs continued to improve, and the spirit of teamwork that exists between workers and supervisors is the best I have encountered at any factory location.

Encouraging reports of a general nature are received from non-factory locations, together with reports of specific situations that have been resolved through use of the principles embodied in this part of our management development program. One very real result from the group conferences has been the increased understanding of functional and inter-departmental relationships and the development of a better team spirit among group members. To a certain extent the evaluation of the broad basic training in fundamentals portion of our program is similar to evaluating research or education. While it may be difficult to point out specific results to be obtained from either during the research or educational processes, you know, from the recorded experience of others, that in the long run both pay richly in dividends.

Results of Specialized Training

The second phase of our management development program, the area of specialized training in specific departmental activities, can be evaluated to a greater extent in terms of dollar results. For example, at location "A" the positions of 29 clerical employees were surveyed and clerical cost control was established as a tool for the office manager. Within a year the work force had been reduced by 13 people

with a resulting saving in direct labor clerical cost of approximately $27,000. At location "B" the positions of 20 clerical employees were similarly surveyed. Within a year the clerical work force had been reduced by six people, with a direct labor clerical cost saving of approximately $14,000. At location "C" the positions of 19 clerical employees were surveyed and, at the end of approximately one year, the work force had been reduced by 7 people with direct clerical labor cost savings of approximately $12,000. At location "D" the positions of 18 clerical workers were surveyed. At the end of 14 months the work force had been reduced by five people with resulting savings in direct labor clerical cost of approximately $11,000.

A Policy Statement by Management

These are tangible continuing savings and to them must be added the intangible benefits that inevitably accrue through providing people with balanced jobs and making it possible for them to enjoy feelings of security, job satisfaction, and recognition. At this point, because it is important, I should like to mention a few of the things that made the introduction of clerical work measurement and clerical cost control acceptable to clerical employees and to clerical supervisors:

(1) Top management stated as a definite policy:
   (a) Existence of excess time in the initial application of the technique of clerical work measurement was not in any sense a reflection on local supervision for, until top management provided an adequate measurement device, the supervisor was without a yardstick to determine accurately the number of man-hours required to perform the work for which he was held responsible.
   (b) No competent employee would lose his or her position as an immediate result of the application of the technique of clerical work measurement.
   (c) Any reduction of personnel required to bring the over-all performance up to the accepted minimum standard of 87.5 per cent would be accomplished through normal transfers, turnover, etc.

(2) Because of the foregoing policy, clerical employees entered enthusiastically into the clerical work measurement part of the program.

(3) Every standard unit time developed had to be acceptable to the employee who performed the operation, to the supervisor, and to the analyst. Occasionally this policy resulted in prolonging the survey work somewhat, but it definitely paid off in good employee morale and interest in the objectives.

We are now in the process of applying the broad basic training part of our program to locations where clerical cost control is in effect. What the results will be when these locations have completed the program we can only speculate, but on the basis of evaluated results so far creditable to each part of the program, we are inclined toward a feeling of optimism.

SESSION III

COSTS TO AID MANAGEMENT IN PROBLEMS OF ALTERNATIVE CHOICE

TUESDAY MORNING, JUNE 20, 1950

JESSE G. KLINE, Chief Accountant, The Atlantic Refining Co., Philadelphia, Pa., *Chairman.*

I. WAYNE KELLER has been Assistant Controller of Armstrong Cork Co. since 1943 and has been connected with that company since 1930, becoming its Chief Accountant in 1938. He is a Certified Public Accountant of Pennsylvania, and a member of the Pennsylvania Institute of Accountants and of the American Institute of Accountants.

Active in industrial accounting throughout its period of greatest development, Mr. Keller's experience with his company has covered virtually all phases of cost and general accounting, including systems design for domestic and foreign factories and subsidiaries. He is the author of numerous articles which have been published in periodicals both here and abroad.

Mr. Keller is currently, and has been for several years, Chairman of the N.A.C.A. National Research Committee and is a Past National Director, having served five years on the National Board. He is Past President of Lancaster Chapter.

ARTHUR H. SMITH is Assistant Comptroller, General Mills, Inc., Minneapolis, Minn., a post to which he was appointed in 1946 following ten years of service with his company. His first position with General Mills was that of grain accountant. Promotions made him, successively, systems accountant, assistant to the chief accountant, and Vice-President and Comptroller of the Mechanical Division before elevation to the position he now holds. A native of Milwaukee and a graduate of the University of Wisconsin, Mr. Smith is also a certified Public Accountant of Wisconsin.

Long active in N.A.C.A. Mr. Smith has been a member of the National Committee on Research for the past three years. He is a Past President of Twin Cities Chapter.

COMPARATIVE COSTS FOR FACTORY MANAGEMENT

I. WAYNE KELLER

Assistant Controller, Armstrong Cork Company,
Lancaster, Pa.

THE statement of the objectives of research in industrial accounting, issued by the N.A.C.A. Committee on Research in 1945, included the following, "This . . . work will bring into sharp focus the many uses to which cost accounting figures are put. It is likely to develop that different purposes require different procedures so that a priority of purpose, determined for proper reasons of business policy, will be tantamount to determining a priority of method. . . ." I believe the committee was being cautious when they inserted the phrase "it is likely to develop" and that every member, individually, would have agreed that the purposes to be served by costs do determine cost accounting practices. I can say that because I was not a member of that committee.

Comparative costs are costs developed for a special purpose—the evaluation of alternative courses of management action. They have specific and definite characteristics which make them invaluable for this purpose and, I believe, these in turn determine the cost accounting practices and procedures followed in their development and presentation. This is the thirty-first annual conference of the National Association of Cost Accountants and, over that span of years, the term "comparative costs" has not been used as the subject of a published technical paper, but I hasten to add that there have been papers written on the subject, with other titles. Costs have been described by such terms as: actual, standard, estimated, replacement, normal, predetermined, inventory, product, process, job order, and others. Each of these terms denotes *either* a specific use of the respective cost data or the method by which they are compiled. The term "comparative costs" denotes *both* the end use of the data and the method of their compilation.

It is our purpose today to examine, first, the purposes which comparative costs are intended to serve, second, the unique characteristics

of comparative costs, third, the methods to be followed in the determination of such costs and, finally, to illustrate these with several case studies. We shall limit our discussion to factory costs up to the point of placing the material in the factory warehouse, that is, to comparative costs for *factory* management. By "factory management" we mean the act of managing the production side of the business and not the persons who discharge this responsibility.

In some enterprises this distinction would not need to be made, for the factory managers are in effect general managers and have the responsibility for making all decisions of policy as well as of operation under the policies after they are set. However, in many larger companies, the factory manager is charged only with the operation of the plant under policies established by top management, at production levels established by a central production planning department, with equipment selected by a central engineering department, and within standard costs and budgets set by a central industrial engineering department. In short, he operates within policies established by others. This concept of factory management is too narrow to involve some of the purposes which are to be served by comparative costs as we shall discuss them today, for we are interested more in the policy-making phases of factory management than in the operating phase.

Purposes Served by Comparative Costs

Comparative costs are intended to evaluate alternative courses of action by top management. The advance program for this conference listed some of these as whether to make or buy, whether to replace equipment, whether to expand, whether to change methods of production, and whether to level production or follow sales curves. To these we might add whether to accept or reject business at a special price, whether to centralize or decentralize production activities, whether to change product lines, whether to mechanize operations, whether to use more expensive materials to increase production speeds, and whether to purchase on long-term contract or currently. With these additions we still have not covered all of the policy decisions which management must make on the production side of a business and which involve a choice of alternatives.

Every time one of these decisions must be made, a new set of circumstances must be considered. Every change in the level of general business, every shift in competition, every variation in cus-

tomer preferences, every change in wage or material price levels, every new scientific development or invention in the industry, must be considered when the comparative costs are determined, for all of these will have an effect on the basic assumptions underlying the costs. As a matter of fact, it is developments such as these which will frequently make a management decision necessary and thus give rise to the need for comparative costs. Thus these costs are intended to guide management in making the recurring but nonrepetitive policy decisions rather than in day-to-day cost control and profit determination.

Comparative costs are also intended to provide the evaluation of the alternative courses of action whenever management wants and needs it. It may be that the sales manager of the Chicago district is on the phone. He has an opportunity to take a large contract which will require twenty per cent of the production capacity for the next year and will raise the production level from sixty to eighty per cent of capacity. But he must shade price. Should he take the business and how low may he go on price? Things are breaking fast and he wants his answers today. No sooner does the general manager hang up the phone than he calls the cost accountant on the "inter-com" and says, "What would this business do to our profit picture?" There is no time in a case like this for long, elaborate, detailed cost studies. Time is of the essence and within the next twenty-four hours a competitor may offer a lower price, get the business, and the need for a decision will have passed. Fortunately, not every decision must be made as quickly, but it is unusual when the determination of comparative costs can wait for the completion of the monthly closing.

Characteristics of Comparative Costs

What then are the unique characteristics of comparative costs which will provide a timely evaluation of alternative courses of action for factory management? First and foremost:

1. They are predetermined costs.
2. They are partial costs.
3. They are developed as special cost projects.

In the area of management responsibility under discussion, the interest is not in what has happened but in what will happen if.... Here history is of value in appraising the future, but the costs shown

by the records must be modified to reflect all anticipated changes before they can be used to evaluate the effects of management's decisions. They must reflect the effects of a forecast or assumed set of circumstances relative to raw material prices, wage rate levels, production speeds, expense costs, equipment costs, etc. Usually these circumstances will be different from those considered in building the current operating standards or budgets. Thus, even if predetermined costs are in use for control, they will at best be suitable only for providing one side of the comparison—the "is happening" side, not the "will happen if" side. A new set of predetermined costs must be developed which will show "what will happen if."

Comparative Costs are Predetermined and Partial Costs

For example, suppose the replacement of a machine tool were under consideration. The cost records would show the actual operating costs of the machine per unit of product. However, these would most likely vary from the standards which assumed a normal level of activity at average efficiency on the usual mixture of products. Certainly neither the actual nor the standard would be applicable to the new machine. Furthermore, because the contemplated replacement machine has greater capacity, it will open new fields for business and thus probably change the product mixture. Therefore, the standard costs and the actual costs which have been developed for the existing machine must be modified as to product mixture if they are to be comparable with the forecast operating costs of the new machine. Thus, in many cases, both sides of the comparison will be based on predetermined costs rather than on historical costs.

It is not necessary to develop total costs by products or work centers in order to provide the comparative data required for decision. More often than not the submission of total costs would be more confusing than helpful. The entire emphasis is on the differences in the costs which are different. Many times the issues are clouded by bringing into the story assigned or allocated costs which could not possibly be changed by any of the decisions to be made.

In the consideration of the replacement of the machine tool, it would only be confusing to include in the comparison a share of the factory manager's salary, or of the plant guards and watchmen, or of the stand-by cost of the boiler room applicable to furnishing comfort heat. The cost of such items will not be changed by the replacement

of the machine, so why bother to bring them into the picture. If there is any real difference of opinion about the wisdom of replacing the machine, the assignment of unaffected costs will simply provide a supply of red herrings to be dragged across the trail by opening arguments on the basis of cost allocation.

Special Studies Required May be Brief or Extended

That these predetermined partial costs must be developed through special project studies is evident because of their very nature. The cost of keeping up a running forecast of "what-will-happen-if" would be prohibitive, even if it were possible to anticipate all of the decisions which management will have to make. "But," you say, "what of the Chicago sales manager who is on the phone and wants to know if he can shade prices to get that big order?" Unfortunately, it will take a bit of time to make the calculations and give him his answer. This may appear to be in conflict with the earlier statement that comparative costs are intended to provide the evaluation of alternative courses of action *when management wants and needs it.* Actually, it is a question of how much time may be taken for the special project study. Probably the special price study could be made in a matter of minutes, while a study of whether or not to build a new plant would require months. The degree of refinement of the cost system in use for control, budgeting, and inventory valuation will be a major factor in determining how quickly the comparative costs can be prepared.

Difference in costs is implied by the term comparative and all of the methods employed in the preparation of these costs are directed toward reporting for each choice all of the costs which will change if an alternate choice is made and eliminating from consideration those costs which will not change. It is this objective which makes established cost accounting procedures unsuitable for these comparative cost studies. If total factory costs which have been developed for inventory valuation are used as a basis for evaluating alternative courses of action, they will invariably mislead management, as will be shown in some of the case studies which we shall review. So different are the problems of developing comparative costs that the Committee on Research in preparing the recent series of reports on the uses of standard costs, while originally intending to include a section on the use of standard costs for planning, found it desirable to omit the section entirely. It is now planned to cover this subject in

the current research study on determination of costs for managerial purposes, which will inquire into the practices of assigning costs to functions or products and the objectives which are intended to be realized by such assignment.

There is no one best method for making these special studies of comparative costs. The items and functions to be costed and compared in each study will depend upon the choice to be made. Some studies will include portions of the three cost elements: material, labor, and expense. Others will cover only one small segment of one of these elements. However, there are several points to be considered for each, whenever it is included in a study.

Material and Labor Costs In Comparative Cost Development

Direct material costs usually present no problem. Production specifications for each of the alternate methods should be sufficiently accurate and detailed to provide a ready comparison of the costs. However, if handling and storage charges are added to the purchase prices of raw materials, either as a percentage of material cost or as a rate per unit, it is usually desirable to eliminate them and consider them along with other labor and expense items. The reason for this is that changes in the value or quantity of raw materials used will not necessarily change the total dollars of cost of handling and storage, and certainly will not change it in direct ratio to the changes in direct material costs.

We might also mention here the problems encountered in joint-product and by-product evaluation. For example, a change in the formulation of one material or the devising of a method to reduce sharply the amount of scrap produced may eliminate almost completely the source of by-product material on which another product was entirely dependent. Therefore, any comparison of material costs must include a comparison of the components of that cost: purchase price, transportation, handling, storage, and shrinkage or deterioration in storage. Then, too, it must go beyond the usage cost of the material and consider the effects on scrap, on joint and by-products, on machines and tools on which it is worked, and on production speeds.

The problems in determining comparative direct labor costs center in those indirect costs which vary directly or indirectly with labor, such as overtime and shift premium, payroll taxes, vacation pay, pensions, group insurance and other benefit programs, and also in labor costs

which are sometimes applied as a percentage of other direct labor, such as inspection or packing charges. Here the important point is that a change in direct labor cost will change some but not all of these related costs. Thus they must be separated either from the direct labor item or the expense item, depending upon how they are classified, and be listed in detail. Only when this is done will it be possible to establish the degree to which each will be changed.

For example, if a production line is to be mechanized and thus reduce the number of labor hours and of men by fifty per cent, but the remaining men will be paid twenty per cent more per hour because of the higher skills required, there would be no change in the company's cost per man for hospitalization insurance for that is not based on earnings but there would be a change in vacation pay costs per man which are based on earnings. The change in any one of these related costs may not, in itself, be sufficient to alter management decision, but in the aggregate they are a considerable factor.

Detailed Consideration of Relevant Expense Classifications

Expenses too must be considered in detail, for the behavior pattern of each item is different under a given set of comparative circumstances. Those which are direct, such as the cost of tools, jigs, and dies, should be compared specifically. Indirect expenses should be considered by functions such as maintenance, power generation, plant protection, supervision, building space or rent, etc., and the total cost of each function under each alternative compared. Generally expenses which are allocated or assigned to a product or a work center will not be changed by changes in the product or work center. Thus a change in machine type so as to reduce by a third the floor area required for the operation will have no effect on the over-all cost of floor space and this should not be considered in compiling comparative costs. Even if the released space will make possible the addition of another machine and thus provide needed additional capacity, cost of floor space would not be a factor in the first comparison. The desirability of adding the additional machine would call for another study which would be the comparison of affected costs with X number of the old machines and X + 1 of the new machines.

The segregation of expenses into fixed and variable components is vitally necessary for comparative cost studies. This is true whether the expenses are direct to the product or function, or are assigned to

WHETHER TO ACCEPT ADDITIONAL BUSINESS AT A SPECIAL PRICE

Wrong Method

		1950 Forecast 60% of capacity		Special order added to 1950 forecast 80% of capacity	
		Rate	*Amount*	*Rate*	*Amount*
Sales income	10,800,000 gross	$ .14	$1,512,000	$ .14	$1,512,000
	3,600,000 gross		—	.1225	441,000
			$1,512,000		$1,953,000
Standard cost	(a) Direct material	$ .040	432,000	.040	576,000
	(b) Direct labor	.021	226,800	.021	302,400
	(c) Variable factory expense	.010	108,000	.010	144,000
	(d) Fixed factory expense	.020	216,000	.020	288,000
	(e) Variable selling expense	.005	54,000	.005	72,000
	(f) Fixed selling expense	.009	97,200	.009	129,600
	(g) Fixed administrative expense	.007	75,600	.007	100,800
	Total standard cost	$ .112	$1,209,600	$ .112	$1,612,800
	Profit at standard cost	$ .028	$ 302,400	$ .0236	$ 340,200
	Volume variance—Factory expense		(36,000)		36,000
	—Selling expense		(16,200)		16,200
	—Administrative expense		(12,600)		12,600
	Profit at actual cost		$ 237,600		$ 405,000

* * * * * *

Right Method

Sales price of special order	$ .1225	per gross
Variable unit cost (a, b, c, e)	.0760	per gross
Added unit contribution to fixed expense and profit	$ .0465	per gross

3,600,000 gross @ $ .0465 = $167,400 added profit from special order

Case No. 1

it. The effects of a decision will be different on fixed costs than they are on variable. Also, there may be instances in which the variable portion of assigned costs will change and the fixed portion will not.

Because of these different behavior patterns for different expenses, it is not possible for the actual or standard expense rates which were developed for costing production to be used in the comparative cost studies. All too frequently we fail to recognize that rates are the result of a relationship between costs and activity and, if either of these changes, the rates will change. Expense comparisons to be meaningful must be of the total dollars of cost of each component or function.

Sequence of Steps in Developing Comparative Costs

As the 1945 Committee on Research suggested, priority of purpose does determine priority of method, and the methods of developing comparative costs may be summarized as follows:

1. Break the costs down into the finest detail possible—direct material, direct labor, and direct expenses by components, and assigned or indirect expenses by functions—in each instance showing the fixed and variable portions separately.
2. Eliminate those items which experience and training tell you will not be affected by the choice of alternatives.
3. Determine the cost of each of the remaining components or functions under each alternative method.
4. Determine the difference in costs and evaluate the effects of the decision.

Now let us consider several case studies which will illustrate some of these points.

The Case of Special Price Business

The first case is that of the special price for the order the Chicago sales manager is trying to secure. He has assured the general manager that he can write the order at 12½ per cent off the list price and the general manager has asked the cost accountant, "What will it do to our profit picture?" After some time the cost accountant returns and gives the manager the data—shown in the upper portion of the Case 1 illustration. He explains that the list price is 14 cents per gross and a 12½ per cent reduction will result in a price of 12¼ cents

WHETHER TO REPLACE EQUIPMENT

(8,000,000 units per year are produced on four hand operated forming machines which would be replaced by one automatic machine costing $50,000)

Wrong Method

	Hand Forming Rate/M	Hand Forming Amount	Automatic Forming Rate/M	Automatic Forming Amount
Labor—Material preparation	$ .26	$ 1,920	$ —	$ —
Forming	1.56	12,480	.45	3,600
	1.80	14,400	.45	3,600
Expenses 140% of labor	2.52	20,160	.63	5,040
Total labor and expense	$4.32	$34,560	$1.08	$ 8,640

Saving per year $25,920

* * * * * *

Right Method

Press hours per year	4 presses	8,000	1 press	2,000
Labor—Material preparation—1 man 2,000 hrs. @	$ .96	$ 1,920		$ —
Forming —4 men 8,000 hrs. @	1.56	12,480	1 man 2,000 hrs. @ $1.80	3,600
Total labor		14,400		3,600
Expense—F.O.A. taxes based on first $3,000 of earnings		209		45
Other payroll taxes, vacation pay, retirement insurance 8%		1,152		288
Tool costs	actual	1,520	estimated	4,560
Power (exclusive of demand) 10 KW/Mach. Hr. @	.02	1,600	15 KW/Mach. Hr. @ .02	600
Maintenance	actual	4,000	estimated	5,500
Total expense considered		8,481		10,993
Total comparative cost		$22,881		$14,593

Savings per year $8,288

Recap: Comparative costs	$22,881
Costs not considered:	
Depreciation	2,400
Floor space costs	1,600
Indirect labor and related cost	4,079
Share: Supervision and clerical	1,200
Works general	2,400
	$34,560

Case No. 2

per gross for the special order. Then he leads the general manager through the details, explaining that on the basis of the 1950 forecast they are operating below their expense absorption volume of seventy per cent of capacity, while with the special order added they will be above expense absorption volume. This will cause a swing from underabsorbed to overabsorbed fixed expense. Finally, after going through all of the detail he comes up with the comparison—$237,600 of profit before tax without the special order and $405,000 of profit with it, an improvement in profit of $167,400.

Fortunately, the cost accountant's only errors were in the time he took to arrive at the answer and the wear and tear on the nervous system of the general manager who never did understand standards, expense absorption volumes, and volume variances anyhow. If the form at the bottom of this case illustration had been used, the presentation could have gone something like this, "Some of our costs, such as sheet metal and the wages of the men on the punch presses and finishing tables, move up and down with quantity produced. The total of these costs is $.076 per gross. Thus if we receive $.1225 per gross for the special lot we will have the difference, or $.0465 per gross toward expenses, such as your salary, which do not change with production, and toward profit. On 3,600,000 gross this will improve profits $167,400." Such a presentation is quicker, easier, and pleasanter.

It should be noted that, in this case, the calculations can be made without difficulty on the basis of established standards. It has been assumed that there would be no significant price or efficiency variances from standard. Had these been experienced or anticipated the standard unit variable cost would have been adjusted accordingly.

Sometimes the effect on volume is missed in a comparison such as this and the total standard cost is used to evaluate the effects of taking the business at the special price. In the figures in Case 1, if this erroneous calculation had been made, it would have shown an increase in profit on 3,600,000 gross at the standard profit of $.028, or an improvement of only $100,800.

Also, management could be misled by a detailed presentation such as this if several products were made and sold and a substantial portion of the costs designated as "fixed" were allocated rather than direct costs. I recall at least one instance where such information was given to the sales manager. It was information on a product on which a

WHETHER TO ADD A NEW PRODUCT TO THE LINE

Potential income 1,600,000 units per year at .23	$368,000
Factory costs—Direct material @ .08	$128,000
Direct labor @ .045	72,000
Variable expense @ .065	104,000
Machinery additions $5,000— 10 year life	500
Tools $5,000—3½ year life	1,430
Additional supervision	4,200
Total added factory costs	$310,130
Contribution to existing fixed costs, existing or additional distribution costs, and profit	$ 57,870

(It is assumed that adequate facilities exist in service departments to provide power, maintenance, etc.)

Case No. 3

narrow margin of profit was being realized. The sales manager took the designation "fixed" on its face value. He decided to cut price, double his volume, and make a real margin of profit. His statements of product profit for the remainder of the year showed this decision to be wise. However, when he received his first monthly product profit statement the next year, the product showed a loss. Upon investigation he learned that certain fixed costs were allocated on relative product activity in the factory and that, because his product was forecast for more than double last year's volume, it was being charged with proportionately more fixed cost. The fact that this fixed cost was being drawn from products sold by another division did not help to improve the sales manager's opinion of the factory cost system. Beware of allocated fixed in comparative cost studies.

The Case of Machine Replacement

The second case covers the replacement of four hand forming machines with one automatic forming machine. We will not introduce the problems of product mixture into this study, assuming that the products to be produced on the automatic machine are the same as those now produced on the hand-operated machines. Material costs are not a factor since the same amount of material per unit is required under either method.

In this case, the errors in the presentation at the top of the illustration lie in the failure to detail costs and in assuming that the expense rate applied to labor for the hand-operated presses would also apply to the proposed automatic press. In actual practice the difference in labor costs per thousand pieces under the two methods of production would be so great as to immediately raise questions as to the correctness of the old expense rate for the new equipment. However, in an instance where the replacement was being made in a work center where there were a great number of machines and, for simplicity in accounting, an average expense rate was used for costing production, this very method was used on the comparative costs.

The detailed costs shown in the lower portion of the illustration present quite a different picture. On the basis of the savings calculated by using the expense rate, the automatic forming machine costing $50,000 would pay for itself in slightly less than two years. However, when each item of cost is considered separately and computed specifically for each alternative, the figures indicate that a period of

WHETHER TO LEVEL PRODUCTION OR FOLLOW SALES CURVE

Production per 8-hour shift—100 units (125 men per shift, 10 man hours per unit)
Labor rates—Base rate $1.25 per hour 7 a.m.— 3 p.m. shift
1.30 per hour 3 p.m.—11 p.m. shift
1.35 per hour 11 p.m.— 7 a.m. shift

		Production following Sales Curve				*Level production*			
1950	*Working days*	*Shifts per day*	*Production*	*Sales*	*To stock*	*From stock*	*Shifts per day*	*Production*	*Sales*	*To stock*	*From stock*
January	21	2	4,200	4,000	200		2	4,200	4,000	200	
February	20	2	4,000	4,000			2	4,000	4,000		
March	23	2	4,600	4,000	600		2	4,600	4,000	600	
April	20	2	4,000	3,000	1,000		2	4,000	3,000	1,000	
May	22	1	2,200	3,000		800	2	4,400	3,000	1,400	
June	22	1	2,200	2,000	200		2	4,400	2,000	2,400	
July	10	1	1,000	1,000			2	2,000	1,000	1,000	
August	23	1	2,300	1,000	1,300		2	4,600	1,000	3,600	
September	20	2	4,000	4,000			2	4,000	4,000		
October	22	(A) 3	7,800	8,000		200	2	4,400	8,000		3,600
November	21	(A) 3	7,500	8,000		500	2	(C) 5,000	8,000		3,000
December	20	(B) 3	6,200	8,000		1,800	2	(D) 4,400	8,000		3,600
	244		50,000	50,000	3,300	3,300		50,000	50,000	10,200	10,200

(A) Includes 12 shifts on Saturdays — 1,200 units production
(B) Includes 2 shifts on Saturdays — 200 units production
(C) Includes 8 shifts on Saturdays — 800 units production
(D) Includes 4 shifts on Saturdays — 400 units production

Labor Cost—1st shift 253,000 hrs @ 1.25	$316,250
2nd shift 176,000 hrs @ 1.30	228,800
3rd shift 71,000 hrs @1.35	95,850
Saturday premium 5,000 hrs. @ .625	3,125
Saturday premium 5,000 hrs. @ .65	3,250
Saturday premium 4,000 hrs. @ .675	2,700
Total	$649,975
Retirement insurance—2%	13,000
Unemployment tax—2%	13,000
Vacation pay—125 men, 80 hrs. @ 1.25	12,500
Extra supervision and timekeepers—3rd shift	29,400
Retirement insurance and unemployment tax—extra supervisors and timekeepers	1,176
Comparative cost	$719,051

Labor Cost—1st shift 250,000 hrs. @ 1.25	$312,500
2nd shift 250,000 hrs. @ 1.30	325,000
3rd shift	—
Saturday premium 6,000 hrs. @ .625	3,750
Saturday premium 6,000 hrs. @ .65	3,900
Total	$645,150
Retirement insurance—2%	12,903
Unemployment tax—1%	6,452
Vacation pay—125 men, 80 hrs. @ 1.25	12,500
Vacation pay—125 men, 80 hrs @ 1.30	13,000
Warehouse rental 8 months @ $300	2,400
Moving to warehouse 8,200 @ $.10	820
Moving from warehouse 8,200 @ $.10	820
Comparative cost	$694,045

I Wayne Keller
6/7/50

Case No. 4

more than six years is required to recover the new investment, and it looks much less attractive. In this revised appraisal of prospective results depreciation was not considered because it should not influence the decision to replace equipment. Floor space costs were not considered because the change in equipment would simply result in an unoccupied area. Indirect labor and the costs related thereto were not considered because this is material moving and janitor labor, which would not change. Assigned costs were not considered because they would not be changed in total, although the equipment change may result in a different assignment.

The Case of A Proposed New Product

In the two cases which have now been considered, both a right and a wrong method of presenting comparative costs were shown to illustrate how irrelevant facts can confuse or even mislead management. The third case presented here shows only the data which are pertinent to the decision. Here the question is whether or not the business should expand by adding a new product to the line. The comparison is of the added costs with the potential income. The figures indicate that with a very modest investment in equipment and a total increase in fixed expenses of $6,130 per year, a substantial contribution toward existing fixed expenses, additional distribution costs, and profits will be realized. Of course it is hoped that the sales department is cost conscious and will not add more than the $57,870 to their costs in marketing the new product.

The Case of Production Planning

Comparative costs on whether to level production or follow the sales curve are shown in Case No. 4. Here the business has a sales peak in the winter months with very low sales in the summer. The forecast for 1950 indicates a sales volume of 50,000 units, and management does not wish to produce more than are sold during the year. The plant closes two weeks for vacations in July and, during this period, the men are paid their regular base rates which are determined by the shift on which they work. The company has an insured pension plan under which its premium is two per cent of total wages and salaries. Because of a state unemployment tax experience rating credit, the tax rate will be higher if shifts are added and taken off during the year. Salaried personnel are not dropped if production

falls to a one-shift level, but extra supervisors and timekeepers are added temporarily when a third shift is worked.

If the sales curve is followed, with inventory building at any time limited to the capacity of the warehouse (2,000 units), it will be necessary to drop to one shift for the five months May-August and go to three shifts for the last three months of the year. The cost of labor and related expenses plus extra supervision and timekeeping cost under this plan will be $719,051. On the other hand, if two shifts are maintained throughout the year with slightly less Saturday work, it will be necessary to build up to a maximum inventory of 10,200 units by the end of August. Two thousand of these can be placed in the warehouse, but extra space must be rented from May first forward and 8,200 units moved to and from this rented space by a trucking company. In total, comparative costs under this plan will be $694,045.

Two factors are of prime importance in this comparative cost study: (1) wages and related costs and (2) the extra costs when production follows sales versus the extra costs of leveling production. Both sets of cost are predetermined to compare two "what will happen ifs."

Terrain of A New Frontier

It is in the area of comparative costs that the accountant works most closely with management. Here judgment tempered by technical training and experience is brought to bear on the evaluation of alternative courses of action. The foregoing case studies were presented to show how the extent and use of cost data are determined by the nature of the answers which management wants.

The answers which are developed must be tested by experience to establish the accuracy and completeness of the studies. Thus a program of follow-up to establish the extent to which subsequent events prove or disprove the findings of the studies is most important. In some companies this is referred to as preparing "make-good reports." These are not intended to bring condemnation for bad estimates but rather to prevent repetition of mistakes.

As industrial accountants we have been making comparative cost studies for many years. Maybe we have not realized to the fullest extent the possibilities of adapting and developing special cost data for these studies. If we further improve our techniques and really grasp the management aspects of this interesting phase of our work, we will be opening new frontiers for the industrial accountant.

DISTRIBUTION COST ANALYSIS POINTS THE WAY TO MORE PROFITABLE BUSINESS

ARTHUR H. SMITH

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FOR the past hour or so you have been beaming your thinking toward a nice, cozy area of controllable conditions specifically located within four factory walls and readily measured and evaluated by all those techniques so dear to the heart of a true cost accountant. Now I am going to ask you to take a deep breath and get set to jump off into the "wild blue yonder" of an area called distribution that defies standardization and where whims and fancies are frequently as important as a well-developed plan of action. Please do not misunderstand me. I do not mean to say that the problems of controlling and reducing production expense are simple and easily solved. I thoroughly appreciate, as you do, that the problems of controlling production expense are challenging and frequently difficult and that they often require considerable ingenuity toward their successful solution.

A Many-Sided and Unpredictable Field

However, when we move into the field of distribution functions, we are faced with additional challenges that take us into nebulous and dynamically changing areas where courses of action shift quickly, where normal expectancies of cause and effect frequently do not materialize, and where measurement and standardization of effort can be applied only to a very limited extent. When we are ready to merchandise our product to the ultimate consumer, we are on the threshold of any area that offers an impressive multiplicity of alternative choices and combinations of choices of getting distribution of our products, including direct selling to consumer, working through jobbers or wholesalers, going direct from manufacturer to retailer, operating manufacturer-owned retail stores, using only advertising media such as magazines, radio, newspapers, television, handbills, etc. Many companies, including those within the same industry, employ

several or more combinations of these various methods, some of which have been built up through historical precedent, some as the result of changes in economic conditions, others because of product requirements in certain areas, and still others as the result of distribution cost analysis.

Often the success of our distribution efforts is contingent upon such intangibles as public psychology, competitors' actions, eye appeal, timing, fads, government actions and fiscal policies, seasonal trends, stage of the business cycle, etc. We see examples of these unpredictable forces every day. A famous radio personality popularizes a particular type of musical instrument and sales skyrocket. Do you suppose such a fortuitous event could be measured or standardized or that the management of competitive products could foresee such a contingency? Or let us take the example of a new movie which caught the public's fancy with its musical background and has pushed sales of another type of musical instrument far more than any concerted marketing program could achieve. Or we may take another example. Our government is considering the repeal of certain excise taxes. What happens? Sales drop sharply on many of the articles involved until the picture becomes more clear as to whether such taxes will remain or be reduced or repealed. These are perhaps striking illustrations of the volatile conditions present in the field of distribution activities, many of which are completely beyond our control, but we could name dozens of other more commonplace factors which dictate success or failure, irrespective of how effectively we think we are spending our distribution dollars.

Can We Set Good Standards for Distribution Costs?

Therefore, when we as cost accountants move into the field of controlling and analyzing distribution expenses, we must recognize immediately that we are dealing with problems entirely different than those we face in the area of production expense. Usually the majority, if not all, of the conditions bearing on production expense are entirely within our control, either on a long-term or short-term basis, and we can rather readily measure the results of alternative courses of action with a considerable degree of assurance. That is true only to a very limited degree when we deal with distribution expense. It seems only logical to me that, since the problems are so different, the tried and true methods of controlling and reducing production expense must be

very critically examined and evaluated before they are applied to the field of distribution expense.

With this in mind, let us examine at the outset whether the techniques of production expense control can be applied to distribution. As you well know, in the control of production expense, we usually follow a pattern which, first, identifies the operations. Then we establish the cost of such operations, measure the costs by a standard, develop a plus or minus variance, and subsequently bring such variances to the attention of management for correction or elimination. That, very broadly, is our general approach to controlling production expense. Is this approach possible in controlling distribution cost and in evaluating whether or not our distribution dollars are being spent most effectively? Certainly we can take the first step and identify the operations, such as direct selling, traveling, warehousing, advertising, etc. We can also do a pretty fair job on the second step of determining the actual cost of each of these functions, and this can be done rather well (as will be explained later) within the structure of our account classification through various functional, location, and product code classifications.

However, we now come to the question of establishing a standard of good performance for these various functions. Accountants have frequently advanced the thought that this is entirely possible and should be done. Such standards would be expressed in various terms such as cost per call, cost per mile traveled, cost per warehouse item handled, cost per order invoiced, and other per unit calculations of these various distribution functions. But are such standards feasible? Let us ask, first, how good are these standards, and then let us determine whether or not they are meaningful and whether or not they strike at the heart of the problem of measuring the effective productivity of our distribution efforts. Let us first discuss how good these standards are, because only to the extent that good standards are established can we direct management's attention constructively to improving the profitableness of our business. There are two areas that must be considered in establishing a good standard: (1) the various factors that must be taken account of in calculating the allowable standard and (2) the conditions of operations under which the standard is expected to be used.

For example, in setting a standard for the number of calls a salesman is to make, we would need to allow for a number of factors, such

as the character of the territory to be covered—e.g. rural versus city, class of customer, the type of call usually required (whether an "order-taking" call or a real selling call), the display assistance which we expect the salesman to render the customer, the number of products the salesman is expected to merchandise to the customer, and the assistance the salesman is expected to give the customer in employee indoctrination and training. We must consider also whether all customer calls are to be on a personal contact basis or whether some can be performed by telephone, the number and character of the reports which the salesman is required to make of such calls, and whether the salesman is expected to make any evaluations of competitive actions, prices, displays, etc. These are not all of the factors that should be considered in establishing the allowable standard, but I believe the list is sufficiently impressive to indicate immediately that we probably will need separate standards for various salesmen and that the job of establishing and evaluating all the factors which should be included in the standard is indeed a complicated one.

Are Distribution Cost Standards Practicable of Operation?

Next we may consider the second aspect of setting a good standard, namely the conditions of operations under which the standard is expected to be used. Here we get into further complications. While the standard established might have an application under the exact conditions in effect at the time it was set, you will recall that we are dealing with a turbulent and dynamically changing field where factors of considerable importance can and do change overnight. For example, there is the matter of seasonal trends. During certain seasons of the year, the standard should probably contain one type of salesman's call, for example, one that might be only for the limited purpose of maintaining the customer contact. However, during another season of the year, the salesman's call must be for the purpose of selling our line of merchandise and, therefore, will require him to utilize his full sales talents. Hence the factors that we are putting into our standards can readily change during the course of the year.

Another illustration related to conditions under which a selling expense standard would have to operate, involves the matter of placing various types of advertising behind our products. During a certain part of the year we may beam our advertising directly to the consumer through newspapers and magazines. Perhaps little, if any, ad-

ditional effort will be required on the part of the salesman when he calls on his customers. At other times, we might decide on an advertising program involving a considerable amount of display work, at which time we might require the salesman to participate in various types of display advertising that would considerably increase his time on the customer premises. Such alternative advertising programs are likely to shift rapidly from period to period and frequently carry varying demands on the salesman's time. For these reasons, and they can be applied similarly in varying degrees to other functions carried on in the distribution field, I believe the establishment of performance standards for most of the functions of distribution is very difficult, complicated, and expensive, and I would go even further and seriously question whether good standards could be set at all in most cases, in view of the many variables which surround our principal distribution functions.

The Problem of Interpretation

Assuming, however, for purposes of this discussion that standards could be set, I would like to raise the second question mentioned above, namely, how meaningful is such a standard and how effectively does it contribute to increasing the profitableness of our business? Let us again take the standard of the number of calls per salesman. For purposes of illustrating my point more clearly, let us suppose that we restate the standard number of calls per salesman in terms of a standard cost per call, which would be arrived at by dividing standard expense by the related standard number of calls.

Then let us ask the question: Does a cost per salesman's call which is lower than standard necessarily mean that an adequate merchandising job is being done? It may mean that the salesman is not spending enough time at each of his calls to get proper volume or is otherwise spreading his efforts too thinly throughout his territory. Therefore, while a low cost per call under the standard may appear favorable, it may actually be the opposite, because the salesman's productivity, i.e., sales accomplished, is not tied in with such standard. In turn, a cost per salesman's call over the standard is not necessarily adverse performance since, in spending a little more time with various customers, the salesman might easily have increased his sales volume far out of proportion to the cost of the variance over standard and might have made a greater profit contribution to the company despite the fact

that the accounting records reflected a variance over standard. Comparisons could easily become not only meaningless but misleading.

It is possible, you might say, to correct at least some of this by injecting the factor of volume into the construction of the standard, perhaps developing a standard of sales volume per call. However, this approach also contains a number of inherent weaknesses beyond the very obvious fact that such a requirement would considerably further complicate the development of an adequate standard. For example, volume of sales per se does not necessarily represent good performance if such volume contains a disproportionate amount of low margin business. Volume by itself is always a dangerous divisor in the field of distribution analysis since, although volume by itself is an important factor, what actually is more important is the productivity of such volume from the standpoint of profit contributions to the company. Obviously a standard based on sales dollars per call falls short of measuring this requirement.

There are other areas of criticism that could be developed also concerning a standard based on sales dollars per call. For example, actual results might swing considerably from month to month due to the seasonal nature of volume movements. Comparisons of such results with standard would not be too effective. Also many conditions directly affecting volume are frequently entirely out of the control of the salesman and might result from any of those nebulous factors mentioned previously. To the extent that these factors beyond the salesman's control impair the comparisons, the effectiveness of such comparisons is further nullified. Of course, we might develop weighting factors to our sales volume that would recognize profitability of the volume, seasonal trends, etc., but by this time we will be getting our approach so complicated I doubt if anyone could understand the resulting variance from standard without considerable additional analysis.

We could apply many of these same criticisms to other standards which have been attempted to date in measuring the effectiveness of distribution efforts. However, I do not want to take any further time to illustrate the point I am trying to make, namely, that in my opinion, our attempts to apply production expense control techniques to our distribution efforts are misplaced and can frequently be meaningless or misleading. They also create a considerable amount of accounting

and management effort which seems to be far beyond comparable benefits possible from such techniques.

A Fresh Start on Distribution Cost Analysis

How then can we, as cost accountants, develop a program of distribution cost analysis which will assist management in analyzing and measuring its distribution activities so as to make our distribution efforts more profitable? In answering that question, let us first determine what we mean by distribution cost analysis. To begin with, distribution cost analysis does not *necessarily* mean cost reduction. In this respect, the accountant's approach is somewhat different from that normally used in connection with production expense, where the drive is almost always aimed at cost reduction. Actually, the emphasis in distribution cost analysis is to insure that we are making the most effective use of our distribution dollars in terms of *maximizing profits.*

Distribution cost analysis may indeed point the way toward the need to spend more dollars instead of less in order to gain a proportionately greater share of the market for the dollars so spent. For example, several years ago our company analyzed its market coverage for certain products in certain areas and determined that it would be to our advantage to practically double the sales force in such areas. The accountant who wishes to make a successful contribution to his company's progress through distribution cost analysis methods must be completely aware of this difference in emphasis from the normal approach to production cost analysis.

Considering further what we mean by distribution cost analysis, the words, themselves, immediately suggest detailed reviews and evaluations of various specific distribution functions and expenses. We envision analytical comparisons of alternative ways of spending our distribution dollars which will in turn suggest ways to accomplish the job for less money, get more volume, give better customer service, and so on. We could develop this subject along these lines and illustrate through a series of case studies how to reduce a salesman's travel time, increase his effectiveness, improve our market coverage, get a more profitable product mix, employ cheaper channels of distribution, reduce order handling costs, etc.

However, the term distribution cost analysis has considerably more significance to me. It includes the analytical activities just mentioned,

of course, but to me they are only one part of a whole program of distribution cost analysis which can materially assist management to maximize profits. There is a far broader story to tell on how distribution cost analysis can point the way to more profitable business and I would like to develop that story for you by suggesting a specific program of distribution cost analysis for a particular company—we may call it the X Company.

The Distribution Cost Analysis Program of X Company

We will assume that the X Company has never had any particular program of distribution cost analysis and that only the normal amount of expense accounting was done to accomplish the proper take-off for financial statement purposes. Let us assume also that the X Company has five products and that they are all major products. (For our purposes, I would like to exclude from consideration the problem of product families, by which I mean a line of minor accessories or accommodation items to a principal product. An example of such a product family would be an automobile cleanser and wax, with accessory items such as polishing cloths, wash mops, sponges, etc. These product family lines frequently involve special problems which we do not have the time to consider, such as the necessity at times to carry an accessory or accommodation item as a corollary to the merchandising of the principal product, even though detailed analyses indicate these to be loss items.) Let us assume also that the X Company has accomplished a national distribution of all of its five products and puts advertising in back of each product in varying degrees. The X Company also operates a number of branch offices and warehouses and, in addition, employs a field force of salesmen who call on both jobbers and retailers.

Our program of distribution cost analysis for the X Company can be stated in terms of a five-point plan:

1. Adequate and proper determination of actual distribution costs.
2. Proper budgetary control procedures.
3. Periodic allocation of total cost to products.
4. Periodic reports of profit contributions by products and control units.
5. Special analyses where required.

Point 1: Accounting Classification

It seems only good common sense that the first step in any program of distribution cost analysis is to be certain that the account classification is adequate for the proper determination of distribution costs. If arrangements are not made through the account classification to accumulate distribution costs properly, analytical efforts will be considerably impeded, if not completely stymied—at least from a practical viewpoint. A proper account classification will considerably facilitate our control and analysis of distribution costs as well as facilitate the allocation of either total or out-of-pocket costs to salesmen, product, territories, etc.

Wherever possible, the account classification should be set up on a functional basis, dealing first with the major functions of distribution such as general sales administration, field selling, warehousing, and advertising. These major functions should then be further subdivided by detailed functions, such as salesmen's salaries, travel expense, auto expense, telephone and telegraph, storage and handling, commissions, incentive awards, bonus payments, advertising media, clerical labor, and other practical segregations of detailed functions within each major function. Also, in building the detailed expense accounts to reflect these detailed functions, consideration should be given to the *nature* of the functions so that, insofar as possible, a segregation can be established in the expense accounts as between those functions which are fixed and those which are variable. Such a segregation is desirable to accomplish sound budgeting procedures, as will be mentioned later.

In most cases, it is feasible also to incorporate location codes into the functional codes, so that the major and submajor functional costs can be accumulated by territories, districts, or branches. In certain instances, it is also possible to build products, or at least product lines, into the account classification, such as in the case of warehousing and advertising expenses. To the extent that this can be done, it will further facilitate analysis and allocation efforts. However, there is a practical limitation to the achievement of such refinements in the official account classification and segregations should be carried only to the point where they are feasible, with further segregations accomplished through special analyses if necessary.

While I do not wish to stray from our principal discussion and get

into the field of other prerequisites of an adequate and proper account classification system, such as the pinpointing of personal responsibility for expense control, I do want to make one observation. When I use the expression, "an account classification that will insure proper determination of distribution costs," I do not mean to advocate a complete segregation through the account classification of all functions which might be defined as distribution costs to the detriment of logical company organization and sound principles of expense control.

For example, there are certain order handling costs frequently classified as administrative expense. Also part of the president's time may be spent in contacting large accounts, although his salary may at the same time be classified in administrative expense. Likewise, certain engineers at times contribute toward selling effort but their salaries may be classified in manufacturing expense. These examples occur rather frequently within companies and, although they affect a part of our distribution cost program, it would be a mistake to twist the account classification into all sorts of complicated knots in order to obtain a purity of distribution costs. Such areas of distribution functions outside of the normal account classification of distribution costs must of course be given adequate recognition in analyzing classes of customers, products, etc., but this may be done much more feasibly through special analysis rather than an attempt to incorporate these frequently natural overlappings into a formal account classification. That is a problem which must be solved on an individual company basis.

Point 2: Budgetary Control

The second step in our five-point plan of distribution cost analysis is the development of a sound program of budgetary control on a variable budget basis. To the extent that functions are segregated naturally in the detailed expense accounts, the development of a budget on a variable basis will be considerably facilitated. For example, in our company we segregate incentive awards in our account classification and have adapted a variable budget plan to it which establishes budget allowances equivalent to the actual awards. Our thinking here is that if we have conceived a sound incentive program, the more we spend for incentive awards, the better off our company is from a profit viewpoint, and therefore we gain nothing by establishing a budget limit on the account.

While some of you may not agree that a budgetary control program is part of a sound plan for distribution cost analysis, budgeted objectives or standards set by the budget can, as we will see later, be very helpful in our distribution cost analysis program. Also, while budgeting is a subject in itself (and again I do not wish to divert our discussion from the principal theme of distribution cost analysis), I would like to stress that these budgets should emphasize the importance of personal responsibility on a functional basis and should be developed by starting in the field at the lowest control unit, which in distribution would normally be the salesman and product, and soliciting the direct assistance and cooperation of the individual salesmen and their branch managers in building sound and realistic objectives.

Now I am going to concede at this point in the discussion of the five-point program that you can have a fuzzy account classification, no budget, and can still analyze distribution costs. As a matter of fact, if you are interested in putting a lot of excessive and unnecessary effort into your distribution cost analysis, I would heartily (although foolishly) recommend that you have neither an adequate account classification nor a budget. I can guarantee you that, accordingly, your analytical efforts will be multiplied many times. However, if you want to minimize your analytical requirements and achieve as much if not more assistance to management in its search for the most profitable combinations of distribution cost, you will find these two steps very helpful and quite essential in such a program.

Point 3: Periodic Allocation of Distribution Costs

Assuming, then, that we have accomplished these first two steps, our program of distribution cost analysis next calls for a full allocation of cost to products. This allocation includes all costs, so that the end result is a net profit by products which, in the case of the X Company, would be a profit for each of its five products. Such an allocation of total costs to products is essential for a number of reasons. The X Company is in business to make a profit—and not just *a profit* but a profit which will provide an adequate return to the owners commensurate with the investment and risk they are taking. A full cost allocation and a resulting net profit by products gives them evidence of the extent to which each product they are merchandising is contributing to this adequate return. Since they are presumably in business for the long pull, they are interested beyond the point of

whether the products they are merchandising cover the related direct expenses. They want and should have knowledge as to whether these products are covering, not only the direct expenses, but also those general expenses necessary to carry on the business from year to year. If these latter expenses are not covered properly, obviously the company will not earn its proper profit return on an over-all basis.

Likewise, by using statements containing full cost allocations and net profits by products, management is in the position to evaluate the cost-selling price relationships more adequately for each product. Selling prices may be evaluated and cost relationships examined as between fixed and variable expenses and also between those which are direct and allocated. We can also study the effects of volume increases and volume decreases and examine many other relationships which you will recognize as following the various patterns made possible through break-even chart analyses.

However, although I believe that a full cost allocation to products is desirable, I do not believe that it would normally be necessary more than once a year, usually at budget time. Also, such cost allocations should be made on the basis of planned or budgeted costs for the entire year, not only to evaluate the objectives established by the budget but also to permit an evaluation from the standpoint of a full business cycle. Also, if a full cost allocation is done more frequently, such a practice is seriously open to question because of the clerical effort involved and the likelihood that, if an adequate job is done, there should not be any significant differences. Of course, if major changes in management direction are contemplated or effected, the facts may warrant a new allocation in order to study the impact of such changes.

One further word concerning the desirability of holding full cost allocations to a minimum may be desirable. As you can well appreciate, there are a number of arbitrary allocations which need to be made between products. Being arbitrary, they are frequently open to question and therefore are not too satisfactory from that viewpoint. Also, such full cost allocations require quite a bit of clerical effort which might be better employed on specific evaluations of particular problems, as mentioned later. Many times I wish there were some way by which we could by-pass the costs that require arbitrary allocations, but a dollar of such cost is just as much a deduction from income as a dollar of direct or variable cost and, therefore, must be

given as much consideration in the long-term planning of the business effort. However, although they must be so considered, we should not wrap up our talents any more than we have to in questions of arbitrary allocations and, for this reason, should minimize the time devoted to such allocations as much as possible.

The Question of Allocation Methods

The methods by which full cost allocations can be accomplished, constitute a tremendous question which I would like to avoid this morning except in a general way. As a matter of fact, there is a special reason to side step it now. As you learned from Mr. Kline, both Mr. Keller and I are members of your Committee on Research, and the committee is just moving into a project on determination of costs for managerial purposes, which will explore the area of cost allocation pretty thoroughly in coming months, even down to the question of whether such cost determinations are allocations, applications, prorations, apportionments, assignments, or distributions. Therefore, you can see that the question of methods of cost allocations will be given a review by the committee far more thoroughly than I can hope to do at this time. Also the less I say about it, the less will I be held accountable for by the committee, which gets pretty rough on a fellow at times!

Nevertheless, I would like to make a few general observations. I will have to take my chances with the committee accordingly. As I mentioned previously, I believe such allocations of full cost should be based on annual planned costs and on the anticipated program for the following year. This not only avoids the laborious and frequently misleading maintenance of time records on sales personnel, but also permits sales management and company management to develop a plan of action and emphasis and, in turn, to evaluate expected results on other than a trial and error basis. Under such a plan, salesmen's salaries and their related expenses—such as traveling, auto expense, and telephone and telegraph—would be spread to products, by salesmen, on the basis of the way in which the salesmen *should* spend their time and effort. Commissions, brokerage, bonus and incentive payments also usually tie into products rather well. Warehousing costs, likewise, can frequently be associated with products but, if general warehouses are used, volume bases are usually satisfactory. Similarly, advertising expenditures can usually be rather closely associated with

X COMPANY

SUMMARY OF BUDGETED NET PROFIT BY PRODUCTS AFTER FULL COST ALLOCATION

CALENDAR YEAR ENDING DECEMBER 31, 1950

	Total	*A*	*B*	*C*	*D*	*E*
Budgeted volume (units)	xxx	100,000	10,000	50,000	100,000	40,000
Net sales dollars	$720,000	$100,000	$20,000	$100,000	$300,000	$200,000
Cost of goods sold	288,000	40,000	8,000	40,000	120,000	80,000
Gross profit	$432,000	$ 60,000	$12,000	$ 60,000	$180,000	$120,000
Direct distribution expenses	356,000	40,000	6,000	50,000	150,000	110,000
Remainder: Dollars	$ 76,000	$ 20,000	$ 6,000	$ 10,000	$ 30,000	$ 10,000
Per unit	xxx	20¢	60¢	20¢	30¢	25¢
Allocated distribution expenses	60,000	10,000	1,000	15,000	30,000	4,000
Net profits: Dollars	$ 16,000	$ 10,000	$ 5,000	$ -5,000	—	$ 6,000
Per unit	xxx	10¢	50¢	-10¢	—	15¢

Exhibit 1

products, although there may be certain forms of institutional or "trade position" advertising on which there must be some arbitrary spread.

Generally you will find that the expenses just enumerated constitute the bulk of your distribution costs and, up until now, you can see that there cannot be too much argument on the manner in which such spreads to products have been accomplished. General sales administration expenses normally should be proportionate to the efforts of the field selling force and, accordingly, should be distributed to products in the same proportions as field selling personnel expense was spread. There may be exceptions to this, of course, dependent upon company organization and responsibilities. Office costs, such as order handling and billing, can usually be justifiably spread on volume, weighted if need be to give special recognition to particular products. In making these spreads of general expenses, however, the units of general expenses to be spread should be kept as small as possible, such

as by branch offices, in order to relate such expenses as accurately as practicable to the products involved.

Report of Budgeted Net Profit By Products

It is in order now to assume a full cost allocation for the X Company on the basis of its budget for the calendar year 1950 and I call your attention to the results of this allocation as evidenced in Exhibit 1. You will note that cost of goods sold has been arbitrarily set at 40 per cent of net sales for all products. However, direct distribution expenses differ considerably by products, ranging upwards from 50 per cent of gross profit. These variations result in a remaining gross profit after direct expenses, which varies considerably on a per unit basis between the various products. Now, if we were to stop our analysis right at the point of remaining gross profit after direct distribution expenses, we would have a picture in which Product D makes the greatest contribution in total dollars, followed by Product A. On a per unit basis, Product B heads the list, with Product D second.

However, after giving full consideration to allocated expenses, we learn that Product D moves to a break-even basis and Product C moves into a loss position. This is because allocated expenses vary as between products, and, while the figures on Exhibit 1 have been developed to exaggerate these swings perhaps more than would be normally found, nevertheless, it brings home the full importance of making a complete cost allocation periodically in order to determine the relative profitableness of each of the products involved. Again let me emphasize, however, that normally nothing is to be gained by making such a full cost allocation on a routine and recurring basis. As you will realize when we get through developing our program of distribution cost analysis for the X Company, this is the only point in the program where we bring in full cost allocations.

At this point, Exhibit 1 suggests innumerable questions both before the application of allocated expenses and after such allocation. Illustrative of these questions are: Are we getting proper territory coverage? Are our salesmen spread too thin? Are we employing the proper channels of distribution or should we swing our distribution through to retailers direct rather than through jobbers, or vice versa? Are we covering the larger potential customers adequately or are we concentrating too much on small volume customers? Are we selling

X COMPANY

REPORT OF PROFIT CONTRIBUTION
SALESMAN PRESCOTT

	Month of March, 1950			*3 mo ending March, 1950*		
	Budget	*Actual*	*Plus or Minus (–) Performance*	*Budget*	*Actual*	*Plus or Minus (–) Performance*
Net contributions to fixed distribution cost and profit	$2,000	$1,300	$ —700	$ 7,000	$ 3,000	$—4,000
Direct expenses (1)	3,000	2,700	300	11,000	10,000	1,000
Total gross profit (2)	5,000	4,000	—1,000	18,000	13,000	—5,000
Product A	2,000	2,000	—	8,000	5,000	—3,000
B	500	300	—200	1,500	1,400	—100
C	500	700	200	1,500	1,600	100
D	1,000	500	—500	4,000	2,000	—2,000
E	1,000	500	—500	3,000	3,000	—

(1) Salary, commissions, traveling, telephone and telegraph, auto expense, bonus or incentive payments, payroll taxes, and other direct out-of-pocket expenses.

(2) Net sales less standard or budgeted cost of sales.

Exhibit 2

in the right size of order? Are our prices right? Do we have enough advertising back of these products, or do we have too much advertising, or the most effective type of advertising media? These and many other provocative questions can stimulate special analyses which will contribute materially to more profitable business. However, before getting into this phase of our program of distribution cost analysis, which you will recognize as Point 5 of our program, let us spend a few minutes discussing the fourth point.

Point 4: Profit Contribution Determination

Although it will take only a few minutes to cover this fourth point, it is in many respects one of the most important links in the entire

development. In spite of the multiplicity of alternative methods available for distributing the products of the X Company and in spite of the many extenuating circumstances inherent in the distribution functions which frequently defy standardization and render many measurements ineffective, one thing is certain and that is that the X Company wishes to make a profit and must make a profit if it is to continue very long in business. Presumably at the time the X Company developed its budgeted program for the following year, it established profit objectives which were acceptable under the then known conditions. Also we have assumed that these profit objectives were developed in accordance with good budgetary control techniques, starting with "grass roots" data from the field and developing the company's program up through the branch offices into a total company budget.

Therefore, let us develop some simple mechanism which will take a minimum of effort and which will provide X Company management with an evaluation of progress toward the budgeted goal. It is believed that Exhibit 2 satisfies the requirement. You will note that it is a Report of Profit Contribution and is prepared for each salesman, showing a monthly and cumulative record of profit contributions by products and comparing actual accomplishments with the budgeted objective for that salesman.

Budgeted gross profit by products is developed by multiplying budgeted volume for the month by budgeted margins (net selling price less standard or budgeted cost of sales). Actual gross profit is computed by determining actual net sales less standard or budgeted cost of sales. You will note we exclude all consideration of variances in the workout of cost of sales by employing standard or budgeted cost of sales. Net sales is suggested to include gross sales less returns, allowances, cancellations, and trade discounts. Cash discounts for prompt payment normally should not be deducted from gross sales. Against these gross profit figures are applied salesman's direct expenses in total to arrive at his net contribution to fixed distribution cost and profit.

You will note that the report does not involve itself in any laborious or controversial allocations between products, territories, branch offices, or so on, because this job was done once at budget time and the expense objectives were agreed upon. Thereafter, these allocated expenses will presumably be controlled through monthly budgets of expense and therefore we need no longer spend long clerical hours

further allocating those expenses back into products except as necessary in "spot" analyses discussed later. Also we do not even go to the effort of spreading the salesman's direct expenses to products, and therefore avoid another laborious allocation process, although again this might be required in a special analysis which might be prompted from questions raised in reviewing Exhibit 2. These reports by salesmen can in turn be summarized for the branch, by branches for the division, and by divisions for the company, giving the X Company management sound direction as to current accomplishment toward budget and immediately spotting areas of weakness which deserve special attention.

Exhibit 2 is submitted as one of the most important tools of distribution cost analysis and its use will do much in pointing the way toward more profitable business. It is the acid test as to how profitably we are conducting our operations. Changing mixes of sales are quickly spotted and evaluated. Productivity of the salesman is measured, not in terms of whether or not he made his prescribed number of calls or stayed within his per mile travel cost, but in terms of profit—his *profit contributions* by products. These are the real "payoff" figures as to whether we are getting desired results from our distribution dollars.

Point 5: Special Analyses of Distribution Cost Performance

Let us now consider Point 5 in our program of distribution cost analysis. This part of the program calls for special analytical probing on a "trouble shooting" basis. Many of these special analyses will be suggested by weaknesses revealed by the first four points of this program. Many of the possibilities have already been suggested during my earlier comments. Others will be suggested from time to time by management as it seeks alternative ways of doing business or considers new products, the dropping of old products, etc. Such special probing or analysis might cover costs, volume, or profits.

Wherever applicable, such probing would be directed in terms of salesmen, territories, products, channels of distribution, classes of customer, size of order, the types of selling, delivery methods, types of advertising media, warehousing methods, inventory positions, customer service, and other aspects of our distribution activities. Obviously each of these areas for review have their own problems and our analysis would investigate the function or activity being performed

to determine the possibilities of alternative courses of action. Any improvement which such analysis might suggest in the way of increasing volume, increasing profit margins, increasing profits by a better product mix, or decreasing costs, would of course point the way to more profitable business.

However, I want to emphasize that these special analyses should be done on a "trouble shooting" basis rather than on a regular or routine basis. Let me explain that further by an illustration of what I mean. Under the type of program that I have been outlining, Exhibit 2 indicates that Salesman Prescott is having difficulty in making his proper contribution to fixed distribution cost and profit. Therefore, let us run a special analysis to determine whether or not we can locate the trouble. Since both Salesman Prescott and the branch manager helped prepare the budget, we normally should expect that the goals which have been set are attainable. There are exceptions to this, of course, but if the budget is properly prepared, this is ordinarily a pretty safe assumption. However, the calculated goals should be reviewed anyway to determine if they are proper, attainable objectives. On the surface of it, the expense budget seems to have been pretty well set because Salesman Prescott is staying within it, but this suggests the possibility that Salesman Prescott may be short-cutting certain of his activities to the detriment of his volume.

Hence, we will want to examine the extent of his territory coverage, how it is being covered, the number of calls being made, etc., for a possible lead that might explain the lack of volume, particularly on Products A and D. We will also examine the customer records of Salesman Prescott to determine whether this lack of volume is a general condition or whether it can be attributed to a few customers and, if the latter, just what conditions have given rise to Salesman Prescott's inability to sell these particular customers. Perhaps our analysis will reveal that competitors' actions are causing us the difficulty and, therefore, either Salesman Prescott should be giving more attention to these accounts or some other course might be suggested, such as a product redesign, a better price, more advertising in back of the product, better customer service, etc. Or perhaps Salesman Prescott is getting original volume all right but his returns and allowances are abnormally high, reducing net sales well below budget. Obviously our analysis should then proceed to a determination of the cause for the high returns and what can be done to reduce them.

Special Analyses May Have Broad Range

These are just the highlights of the kind of a review which should be made and which, it is suggested, will point the way to more profitable business. However, once this review has been completed and the weakness solved, there should be little need to set up any recurring analyses on Salesman Prescott.

There is one further point which should be mentioned if it is not already obvious. In discussing these special analyses, I have purposely set the discussion on the basis that they are to be "trouble shooting" assignments as weaknesses develop, in order to emphasize the belief that they need not be routinized. Obviously, however, we do not have to restrict our special analyses to times when weaknesses become evident from the first four control tools of this program. It would, for example, be entirely constructive to calculate a cost per call comparison between salesmen to determine whether such a calculation might provide a lead for further profit enhancement. It would certainly be in order to calculate a cost per mile traveled between salesmen, or a cost per order received or a cost per item warehoused or any number of other cost calculations constructed for comparative purposes to probe for leads which might suggest ways of accomplishing more profitable business. There is nothing wrong with this type of a program and it should be encouraged wherever possible, but on a selective and nonroutine basis. Let us not get ourselves bogged down with reams of cost calculations, trying to control a set of conditions which are as different from production expenses as night is from day.

A Path to Better Profits

In conclusion, therefore, I submit that we have real opportunities to develop sound distribution cost analysis programs which will enhance management profits. I believe that the nature of this field is such that you cannot apply the techniques of production expense control except in a very limited way and that the real path to sound distribution cost analysis lies in the direction of a program such as has just been outlined, which emphasizes profit contributions by products, salesmen, territories, or other applicable control units within your business. If we develop this type of a program, we will then be making solid contributions to more profitable business.

SESSION IV

WHAT WE NEED IN COST REPORTS

WEDNESDAY MORNING, JUNE 21, 1950

PAUL W. KEARNEY, Executive Assistant, United States Steel Corp., Pittsburgh, Pa., *Chairman*

Roy T. Hurley was chosen President of Curtiss-Wright Corporation, Wood-Ridge, N. J., in 1949. At that time he was Director of Manufacturing Engineering for the Ford Motor Co., Dearborn, Michigan. During World War II, he held the post of Deputy to the Chief of Ordnance.

Mr. Hurley has had long experience in manufacturing industry. During the years 1921 to 1935, he served successively, as Chief Engineer and, in two instances, as Vice-President and General Manager of manufacturing companies in the small and medium size group before affiliation in the latter year with Bendix Aviation Corp. as Vice-President in charge of manufacturing, a post which he held for a twelve year period.

William K. Perry is Assistant to the Director of Manufacturing, Eclipse-Pioneer Division, Bendix Aviation Corporation, Teterboro, New Jersey. Previous to his present connection, Mr. Perry spent six years with Western Electric Company where his duties concerned the related problems of the engineering and manufacturing staffs. Still earlier he was Production Manager with Weston Electrical Instrument Corporation and occupied the same post with Carrier Manufacturing Corporation. Mr. Perry was graduated from the Newark College of Engineering as a mechanical engineer.

WHAT WE NEED IN COST REPORTS— FOR GENERAL MANAGEMENT

ROY T. HURLEY

President, Curtiss-Wright Corporation,
Wood-Ridge, New Jersey

I AM honored to be here today as an operating man to talk to cost men. To me the real dividend of my job is to be able to look at the score we make in operating at Curtiss-Wright Corp. Without good figures and good cost records—what I call the score—you would be in the position of going out and playing a round of golf or tennis or whatever the sport is that you like, and coming back home and saying to your wife, "Oh, I don't know what happened today. I just knocked the ball around. I didn't keep score." Keeping score is the thing that puts some fun into the job and makes it interesting.

There is one weakness though, in relying on the technique of keeping score. The results are known only after the act. Our world is moving pretty fast. Manufacturing activities are moving too, and becoming very complex. They are moving in many directions. It used to be that we could employ a master mechanic for a wide range of difficult jobs. Today the art of cutting metals, welding metals, assembling instruments and testing, has become so complex that it takes an engineer, not a mechanic. And the arts that the engineer has to employ have become so complex that he has to specialize. It is beyond the scope of one man to master all of them. He can just touch the tops of them.

Advance Knowledge of Cost a Necessity

Because of this complexity, it has become of the utmost importance to me, when the specialist goes to work and begins to engineer into our organization the tools we are going to work with, that there be a meeting of two minds: his mind as an engineer setting up a process or a method and your minds, the minds of the men who establish what that development is going to cost when we get it in there. That is of great importance.

An example may help here. At Ford, while I was there, we made a complete study of the cost of running a proposed new shop before we started work on its construction. We had to know before we built the building what it was going to cost us to run it after it was built. We had to know how many people we were going to put in it, what supplies we would put in, how much power we were going to use, and so on.

I am going to show you why it is of great importance to know these things in advance. You can hire a man to run a machine or operate a process and perhaps pay him—just to take a round number —$4,000 a year. Any time you want to shut down the process you can let him go. But the machine he is running may cost thirty or thirty-five thousand dollars. Part of the machine may be depreciable over ten or twelve years. A portion of the special equipment and attachments may have a five year life. The related tooling, depending on the line of business, may be amortizable over two years. Thus, the average annual depreciation will run more in dollars than the wage paid to operate his equipment. You can lay the man off and get rid of that expense, but you cannot get rid of the depreciation or the machine without exceptional luck in the second hand market. You can discharge a watchman, you can turn off the lights and the water in the plant and you can let boys throw stones through the windows, but still the sunk investment is still there.

Making History—The Case of An Improved Process

So you have to use very good judgment when you select and buy a piece of equipment or install a process. You can use good judgment only if you can get "before the act" cost information. To me that is the all-important thing. After the act, you are recording history and in all honesty and sincerity it does not take too much ability to do just a recording job of history. You do have to be analytical and to know how to distribute, and so forth, but the skill required is still of a limited order.

It takes more ability to make history. When it comes to contributing to the making of history, I think industrial accountants and their work have not been recognized by management. Perhaps you have not made it "glamorous" enough. Maybe you have not done enough "selling," or maybe you have made it a little bit too complex. When you get to words like "distribution or deviation from standard

or actual" and things like that, you lose the man you are talking to. Right then and there you have done a poor job of selling. He does not follow you or stay with you. I think you are going to have to give serious consideration to doing a job of selling to help management recognize the value of what you have and what can be done with it, and get into it early in the game.

To show you how important and how involved getting some of these cost items can be, another example—again from my experience at Ford—may be to the point. We were machining the drive pinion for the Ford car on lathes of a well-known make. They were very good machine tools, so nothing I am saying here is in criticism. We used about twenty of those machine tools and we machined those parts at about 150 to 175 surface feet a minute. However, we found by experimentation, that a few of the forgings came through which could be machined at four or five hundred surface feet a minute, perhaps ten per cent of them. We had a cost man make a study as to what the benefits would be if we could get all of the forgings to machine freely and allow us to machine at that rate. His findings were such that we went ahead with a very serious investigation.

We finally found that by coupling a salt bath furnace with an upsetting machine, we could get 100 per cent of our forgings so they could be machined at 1,000 surface feet a minute. We then established a cost on that basis, a synthetic cost before the fact—and that gave us enough encouragement, so we went to the machine tool people and said, "We want designed and built a machine tool to machine these pieces at 1,000 surface feet a minute." Those machine tools are running in the Ford Motor Car Company today. Three of them took the place of the twenty old machine tools. The approach which brought this about was possible only by getting the processing engineer and the cost man together early in the game.

Study of Competitors' Costs

There is another source of cost information which I would like to talk about this morning and which I think is of great importance and will enhance the importance of the industrial accountant's work. At first, it may seem to be a rather obscure matter but I will do my best to make it clear. I think the cost man should, on his own volition, know more about the cost of competing products. Again this must be done on a "before the act" basis with respect to the company's

own product and process development decisions. However, I do not mean to say you should do it by asking to visit your competitor's plant and analyze his cost.

I think what you should do is to study the other makes, and develop what I would call a "designed-in" cost of the company's and competitors' products. The automobile industry does it. If a company is making a car which sells for $1500 and there are two cars competing at that price, generally, in my experience, the company will develop an actual cost of its car and will have made a process and a cost study to establish the designed-in cost, what the cost would be if every advantage of modern methods and new machine tools, etc., could be available. A study is also made of other cars and a designed-in cost established (company representatives never get into their competitors' plants but they have a pretty good idea of what the designed-in cost is). Then, based on the profit and loss statement, operating ratios and relative efficiency, the company can use those designed-in costs to get a pretty good idea of how well competitors are making out.

With that information available, company management can do a very good job. It is not in the position of second guessing but can go right out and plan with assurance and with safety, and with the knowledge that what is done is going to pay off and is going to be sound. I feel the type of approach to cost and cost recording, thus illustrated, will yield results in a definite way. We are not going to see a reduction in wages or in the prices of the things we buy and use in the near future. High-level wages and prices are with us to stay. The only thing that we can do to offset them is to become more efficient. If we can take the $1,500 product and, by good cost analysis, combine cost information with other factors, we are going to step up our volume of production. Again, we will get a further benefit, as you men well know, from a reduction in cost, and our standard of living will go up.

The Path of Progress

There is no end to benefits from this line of thinking in operating a manufacturing company. The minute a management becomes smug, it is going backward. There is no standing still. You have got to keep on and keep pushing. I can walk into a shop this morning and look at an operation and say to the man, "Why the devil don't you

do it this way? It will cost less," and I can feel very good about the improvement I made. Tomorrow, John Jones will come along, look at the same thing and say, "Why don't you do this?", and then I'll wonder what was wrong with me the day before. But then I'll look at his suggestion and say, "Well, why don't we do this?" You can continue that way indefinitely.

You may think that the average automobile today costs a lot of money but, if you examine the basis very carefully, you will find that, when you take out the taxes and the increased costs of materials, etc., the industry is really giving more for a dollar than at any time in the past. It is doing a lot better job today and can do a still better job in the future.

Intelligent cost work will also generate sales for industry. The little story I told about machine tools and the machining of drive pinions implies a philosophy which, were it applied to all machine tools in the country, would make obsolete some seventy-five or eighty per cent of them. They would be replaced with more modern machine tools and more of them, and it would stimulate sales in that industry. The end product being reduced in cost, a further stimulus to larger volume output would be supplied.

Guarding Against Acceptance of Easy Answers

In providing costs for the processing man, we have got also to keep our minds open and not accept too readily what looks like an easy answer to a cost reduction problem. Recently, we had a study made in one of our plants, from which it appeared that it would be a very smart move to take coal-burning equipment out of our power house and replace it with oil. For an investment of $150,000, it seemed we could save about $100,000 a year. It would have been very easy to say, "Okay, that's the thing to do." However, in our administrative committee meeting we decided to have a coal man make a survey of the situation to see what he could offer. He very quickly uncovered the fact that some of our controls were installed improperly and that, by rearranging them and a few other things, the money that we were going to save by converting to oil could be saved by more effective use of the coal we had, and we did not have to make the investment for the oil burning equipment.

That sort of thing has to be watched and guarded against—the quick, easy jump from one arrangement to another. There is a great

deal of that in industry. Perhaps we have machine tooling trouble and a cutting machine is not standing up. We may decide to call in a machine tool or cutter manufacturer representing another grade of product or perhaps one fabricated from another material. He comes in and sells us a new line of tools. Things run well and it is supposed to be a wonderful improvement. Perhaps the visitor's main contribution was not the substitute product. Perhaps he stopped the belt from slipping on the machine tool. If we had done this, possibly we would not have had to call him in and this would not have changed the tool and obsoleted some of our tool inventory.

This brings up the question of watching depreciation and maintenance of equipment carefully. I think industrial accountants are going to have to study that phase of cost work and point out to management what equipment purchases will do to present machine tools and to equipment and buildings.

Another thing that industrial accountants can do to help management is to develop operating ratios which allow management to make decisions in advance. Sales per square foot of floor space, dollar per sales per employee, average cost per employee, and the overhead dollars against head count, all those various operating ratios can become very important because they allow management to look forward and not look backward.

Vital Considerations Escape Attention—An Example

Layout efficiency, which affects inventory turnover and other matters, is very important and very essential to watch. An odd angle in this turned up once when, in setting up a new plant for Ford, I had a talk with a competitor, a man who laid out an engine plant for another automobile company. In our case, we had been planning to use about ninety square feet per employee. We were very serious about the cost of the building and the equipment. We knew that once we bought them, they were really for keeps. When I talked with the plant layout engineer for the competing company, this was on my mind and I inquired, "How many square feet per man did you use in the building that you put up two years ago?" He said it was about one hundred square feet per employee but that his boss had wanted to go down to seventy-five square feet per employee.

I said, "If you had it to do again, what would you do on your own?" "Well—," he said, "I would be inclined to go up to one

hundred twenty-five square feet. The foremen want more space. They are too crowded at one hundred square feet. Every once in a while they get in trouble and they want more space to put things down." After he had made this statement he looked thoughtful and said, "No, wait a minute. I take that back. I would do what the boss wanted me to do, seventy-five square feet." I said, "Why are you changing your mind?"

"Well, we don't want a place for the foremen to put things down because that costs money. If they can stop and set things on the floor, that allows them to take their time to repair a machine which is broken down, or whatever the difficulty is, and I guess the boss is right. We have got to cut the square feet down so, if something happens, it has to be fixed in a hurry or they have to anticipate breakdowns and be ready to keep things running."

Material Specifications Affect Processing Costs

I would like to touch briefly on the subject of material and to go back to that machine tool we talked about earlier. We are buying materials that we use in our industry—if we take steel as an example, we buy it on the grade or on the specification that covers its chemistry and physical properties. In doing that, we are buying a material which the designing engineer will use and on the basis of which he will design the product. The same holds good for brass, plastics and other items. However, there is one thing we have not been specifying, that is, the machineability, as we might call it, of the material. We can buy an alloy steel, for example, that has a machineability value of one and a physical property value of, let us say, 100. It may be possible to buy that same steel with the desired physical properties and a machineability factor of five. In other words, it is five times as serviceable—it is free machining, let me put it that way.

Now, that free machining property permits substantial reduction of costs. You will find you can do on three machines what you had been doing on five. I am going to try and develop this approach. I would like to suggest to you that you do it in your respective companies, that you look at the materials you buy from the standpoint of how they affect your cost in processing and that you encourage your people to add to their specification those things that do affect your costs. I think you will be surprised to find that you can make very, very substantial savings.

The Important Point

Again, that becomes "before the act" and not "after the act." Only so can the information affect a current situation. Lessons can be learned from history, we all know. However, lessons learned from present facts to avoid committing errors (which history, incidentally, will record) are infinitely more worth while. It is to this task, I feel, that the energies of the industrial accountant are most profitably directed for his company, his profession and himself.

WHAT WE NEED IN COST REPORTS— FOR FACTORY SUPERVISION

WILLIAM K. PERRY

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THIS meeting is catalogued as a technical session. I am not a cost accountant so if I get accounting terms mixed up, please pardon me. The very fact will emphasize one of the major problems of the factory executive. This problem is the expression of the economics of a manufacturing operation in terms synonymous with its production activities. Let us look first at the needs of factory management in so far as costs are concerned.

What is the job of factory management? It is the responsibility of guiding the productive processing and the related services or indirect functions to produce the product or products at a salable cost. In our present day condition of highly competitive markets and frequently complicated products, we find this job a very complex one. Without quick and satisfactory knowledge of manufacturing costs, a successful operation cannot be possible. Such information must come to the factory executive in a form which can be quickly digested. It must be expressed in simple terms.

Cost Information Must Dovetail With Lines of Responsibility

Much of the information must be passed along promptly to functional operating units. This need, therefore, does not allow time for the interpretation of data from academic accounting distributions into the channels of control created by supervision responsibilities. The factory executive must be in a position to clearly explain to his operating supervision the conditions pertinent to each supervisor's specific operations. To do this, the information must somewhere be gathered together in such a manner that it is specific to, and is the result of, the conduct of the particular supervisor's functions.

It must be recognized that factory supervisors are, in the main, concerned with the production of products or services and that their

thinking and actions are predominantly in channels which are to bring about the accomplishment of these things. The consideration of the costs and expenses incident to these operations, therefore, must be presented to them in terms which parallel and dovetail directly with their daily routines. This must be done if they are to effectively and quickly accomplish the desired results.

In most manufacturing operations the costs fall readily into two classifications—direct or productive costs and indirect or nonproductive costs. The latter are frequently designated simply as expense. The first classification—direct costs— consists of items which are generally more easily controlled than the indirect or expense items. This is due to the fact that these operations are controlled either through machining or conveyor-paced procedures or the application of one of the many types of incentive systems.

Construction of a Budget Ledger

It is in the control of the indirect or expense items that the greatest effort must be expended. To know of these expenditures in sufficient time to make the necessary corrections and so effect control, is a major difficulty. A reporting budget or budget ledger is one device which, if properly designed and operated, can serve as a very satisfactory instrument in controlling the indirect expenditures in a manufacturing organization. The methods employed in the establishment of a flexible budget which must serve as the basis for such a ledger are generally well-known and accepted procedures in accounting practice.

The control must cover current fiscal periods. These may be a day, a week or a month. Use of any reporting period longer than a month generally nullifies the effect of budgetary control. The basis of measurement must be the current activity. For factory operation, this measurement is generally direct labor, expressed in dollars or hours or tonnage or quantity. The results must be reported promptly. This means that, whether the fiscal period be a day or a week or a month, the record must be in the hands of factory management at the earliest possible moment.

As previously stated, the information contained in the budget ledger must be so designed as to give to factory supervision the data needed in a form which is compatible with its daily operational procedures

and supervision responsibilities. The design and content of such a budget ledger might be set up along the following lines:

1. A ledger page form is designed to show the results of the current week's operations and a year-to-date column is provided for the accumulation of the weekly operations as the year progresses. It shows at a glance whether or not the current week is an improvement or a retrogression from the year-to-date experience.
2. The budget figures are constructed on a variable basis. As the direct labor (exclusive of set up labor) increases, more expense is allowed and vice versa.
3. Red figures in a column entitled "Actual Over Or Under Budget" are used to mean that expenditures have exceeded the budget amount. Black figures in that column are used to show that expenditures have been less than allowed under the budget.
4. The report informs each department of the distribution of the payroll dollars expended each week. In addition, it shows the value of the operating supplies and expense tools that each department withdraws from stores. The scrap values shown are those charged to each department on a responsibility for scrap basis.

Itemization of Cost Categories

The following items are included on separate lines on the form and represent the account breakdown and operating detail made available to the department heads:

1. *Direct labor*
   (a) Labor dollars—the total of direct labor on production items, including set up but excluding labor on engineering projects.
   (b) Set up labor separately.
   (c) Net productive labor by subtraction of item 2 from item 1.
   (d) Labor on engineering projects. Manufacturing operations get credit for this amount.
   (e) Total direct labor, exclusive of set up labor, used in the development of the budget amounts. It is the total of net productive labor and engineering project labor.

2. *Direct controllable expenses*
   (a) Rework.
      (1) Rework performed by and chargeable to each department due to its own faulty workmanship.
      (2) Rework performed by the department but chargeable to another department responsible for the faulty workmanship.
   (b) Bonuses and allowances—Adjustments in the pay of employees whose earned incentive hourly rates are less than the regular day work rates.
   (c) Other indirect labor accounts—Hourly employees whose time has been charged to such activities as clerical, material handling, tool chasers, etc.
   (d) Manufacturing delays—Time of direct labor employees lost due to waiting for material, tools, etc.
   (e) Repairs and maintenance—Charges for time of *productive employees within the department* which has been spent in repairing and maintaining tools and equipment.
   (f) Sundry—All other hourly payroll expense not distributed in the foregoing categories. The nature of such charges are:
      (1) Lost time including that for sickness and accidents, elections and meetings.
      (2) Assembly difficulties.
      (3) Use of substitute materials.
      (4) Welfare.
   (g) Total hourly payroll.
   (h) Operating supplies from stores—Expense material withdrawn from stores on authorized requisition, such as cutting oils, greases, acids, cleaning materials, gloves, etc.
   (i) Expense tools from stores—Perishable and general tools withdrawn from stores on authorized requisition. Does not include tools loaned from stores against ticket.
   (j) Scrap—Charges on a department responsibility basis for the inventory value of materials spoiled and wages expended thereon to and including last operation performed.
   (k) Total direct controllable expense.

3. *Premium time.*
   (a) Overtime—That portion of time paid in excess of straight time on overtime hours.
   (b) Night shift—Premium paid for working on night shifts.
4. *Grand total.*
5. *Labor charged out*—Labor which is charged to other activities or non-manufacturing departments. Amounts entered here are not included in computation of budget variances: (Included as a memo entry on the budget sheet to serve as a guide to each factory supervisor on the amount of effort he is expending which is not contributory to the base of the absorption of his expenses.)
   (a) To tool budgets, appropriations, etc.—Labor charged to tool budgets and equipment appropriations.
   (b) To engineering—Labor charged to engineering is composed primarily of change in design labor and re-work labor caused by actions of the engineering department.
   (c) To commercial and administrative—Labor charged to "commercial and administrative" expense is composed primarily of sales samples, rework due to sales policy, etc.

The last classification—labor charged out—has been included as a memo entry to serve as a guide to each factory supervisor on the amount of effort he is expending which is not contributory to the base for absorption of his expenses.

Summary Reports; Problems of Analysis

The budget ledger sheets are provided by the accounting department on a weekly basis. A separate sheet is set up for each department in the factory organization, including productive departments and nonproductive and service departments. Summaries are provided corresponding to the supervision level to which each group of departments reports. These summaries are then combined into a final summary for the overall factory operation. As previously stated, the budget ledgers reflect conditions as generated in each department without inclusion of data distributed into such accounts as are set up in the official books of the company. They, therefore, provide a true and rapid means of determining the operating status of any department and point out the spots where corrections are required im-

mediately. The data which is needed for the ledger sheets is compiled from the same time card data and at the same time as the payroll, along with tabulating card type requisitions for supplies costs, so that the issuance of each sheet occurs on the same day as payment of the corresponding payroll.

It must be stated in all fairness, that this system is not the ultimate since—due to transfers, other credits and adjustments—it will not tie in completely with the books of the company. It does, however, give to factory supervision, a sufficiently accurate indication of departmental operation within a fiscal period and is offered frequently enough to provide an opportunity to make quick corrections in operations where called for. As may have been noticed in the course of the description of the accounts set up in the budget ledger, certain of them include more than one item, although the larger and important accounts are set up as separate units. Occasions do arise in which one or another of these composite accounts requires further analysis. Under such conditions, special studies can be made to determine where the difficulties exist. These situations have been found to be comparatively few and the gain through grouping has been found to be worth while.

Focus Must Be On Areas of Responsibility

The set up which has been explained is one approach to the problem of what factory supervision needs in cost reports. The specific problem which must be recognized and to which a solution must be found is the provision of data in terms which are commensurate with the way in which such costs and expenses are developed in the factory operations. The items must be grouped into reports which are parallel to the supervision responsibility and they must be presented quickly enough, so that remedial action may be taken as required.

Other than brief references, nothing has been included in this discussion with regard to direct costs. Because of the methods of control which exist on this type of cost, the approach is obviously different and the control of such costs is much more within the domain of factory supervision. Because of this, it was considered more opportune to discuss only the phases of indirect or expense items at this time.

SESSION V

EXPANDING OPPORTUNITIES FOR THE INDUSTRIAL ACCOUNTANT

WEDNESDAY AFTERNOON, JUNE 21, 1950

RONALD H. ROBNETT, Professor of Accounting, Massachusetts Institute of Technology, Cambridge, Mass., *Chairman*

SAMUEL L. H. BURK is Director of Industrial Relations, Pittsburgh Plate Glass Co., Pittsburgh, Pa. He assumed the duties of this position in 1947 following an extended period of service with Atlantic Refining Co., Philadelphia, Pa., which began with installation of a system of job evaluation for the company in 1934. Mr. Burk became, successively, Chief Job Analyst and Director of Organization and Methods.

During World War II, Mr. Burk's services were made available to a number of government agencies and in the development of production for war. He served as Director of Public and Industrial Relations of Triumph Explosives, Elkton, Md., as an organization consultant to the War Production Board, and as Associate Chief of the War Department Wage Administrative Agency, Armed Service Forces.

Active in many organizations in his field, Mr. Burk was for several years a part-time member of the Graduate School Faculty of Wharton School of Finance and Commerce and is a member of the Personnel Division Council of the American Management Association. In 1947 and 1948 he was a National Vice-President of the Society for the Advancement of Management, in charge of Management Research and Development.

CHARLES R. COX is President of Kennecott Copper Corporation, New York, N. Y., to which post he was elevated earlier this year following four years as President of Carnegie-Illinois Steel Corp., and a period of similar length as President of National Tube Co.

Following graduation from College in 1914, Mr. Cox entered the employ of the public accounting firm of Peat, Marwick, Mitchell & Co., New York, N. Y. During World War I, he was affiliated with the United States Shipping Board. In 1920, he entered the steel industry in the employ of Crucible Steel Corp. and ten years later transferred to Babcock & Wilcox Tube Company, Beaver Falls, Pa. It was in 1934 that he joined National Tube Co. at Ellwood City, Pa. where he rose to General Superintendent of the plant. In 1936 he became a Vice-President of the Company, in charge of operations and, in 1941, was made Executive Vice-President, prior to his appointment several years later to head the company.

Mr. Cox received a Certificate of Merit signed by the President attesting to his services during World War II in increasing steel and steel products production, and was recently awarded the honorary degree of Doctor of Commercial Science by New York University.

THE INDUSTRIAL ACCOUNTANT'S ROLE IN LABOR RELATIONS

SAMUEL L. H. BURK

Director of Industrial Relations,
Pittsburgh Plate Glass Company,
Pittsburgh, Pa.

THE title assigned me for this talk is quite limiting in scope, at least from the point of view of a specialist in the field of "management." It is assumed that when the title was selected, it meant that your speaker was to confine himself to remarks concerning the industrial accountant's role in those phases of personnel administration having to do with relationships between management, on the one hand, and the representatives of unionized employees, on the other. Undoubtedly the troubled situation before, during, and after World War II with respect to union-management relationships has placed great emphasis upon the importance of these activities. However, it would be unfortunate to fail to take advantage of this opportunity to emphasize the none too apparent fact that relations with unions form only a small part of the field of human relations in industry. The liberty is taken, therefore, of covering a somewhat broader field, being careful to be specific with respect to the matters covered by the assigned title.

"Industrial Accountant" and "Industrial Relations" Defined

It is difficult for one who has taught at the college level to avoid starting a paper or talk of this kind without some reference to definitions. While definitions of what may appear to be the obvious may be distasteful to a large number in an audience, it is almost essential that the speaker establish at the start an understanding of a number of terms frequently used loosely and in various contexts.

Naturally, in such an audience as this there is a hesitation to define the term, "industrial accountant." Nevertheless, any speaker is entitled to his own ideas on the subject. I shall rely upon the constitutional right of free speech to expound a definition. An industrial accountant is among those who serve in the extractive and manu-

facturing industries in a staff capacity. His function is to determine the need for various types of statistical, financial, cost and tax data required for line control and guidance of operations. When the need for such data has been determined and agreed upon, the industrial accountant and his subordinates provide forecasts, statements, summaries and interpretations and maintain the records necessary to such activities. He must also guide management in the development and dissemination of approved accounting policy and practice, and must investigate and report on adherence thereto.

This definition of an industrial accountant is far from all-inclusive and may meet with a number of objections and criticisms from the audience. Certainly it is too long. The definition of industrial relations is going to be much shorter, because your speaker knows a little more about industrial relations than he does about accounting and can, therefore, say more in fewer words. The term, "industrial relations," is widely used to designate that particular staff specialty which has as its objective the provision of information and services and the exercise of control in connection with the conservation of human resources in industry. Among the so-called experts, the term, "personnel administration," is preferred to the term "industrial relations," because it is more accurate and more descriptive of the activities involved. Here, however, the two terms will be used interchangeably and synonymously.

The Public Relations Side of Industrial Relations

The industrial accountant and the industrial relations man would find some difficulty in justifying their respective existences unless their activities could be tied into the achievement of the objectives of business enterprises. In the July, 1947, issue of *Personnel,* the following definition of the objective of business enterprise was presented:

> "The purpose of business enterprise is the profitable production of goods and services to fill economic needs in such a way as to provide satisfactory returns, both economic and social, to suppliers, owners, and members of the organization, under conditions which provide for the maximum conservation of *human* and *material* resources over a continuing period."

Perhaps the most significant element of the above definition lies in its emphasis on profits and profitable production. We specialists in

human relations frequently lose sight of the profit motive and tend to look upon certain principles and practices of personnel administration as ends in themselves rather than as means toward profits. Many industrial executives over the past few years in their public and publicized statements have appeared to be making some kind of apologies for profits. A group of industrial accountants need not be told about the importance of making and maintaining profitable operations. Perhaps all of us have need to realize that our profit system is the source of our high standards of living and that we need not be ashamed in any way of the proceeds of that system. Since only a healthy economy can produce profits, it would seem to follow that profits are an indication of the well-being and welfare of the nation as a whole.

The industrial accountant can contribute to the solution of this specific problem by devising ways and means of presenting the profit picture in such a way that profits can be interpreted in the light of a healthy company and national economy. This must be done from the point of view of a person not versed in the techniques of accounting or in accounting parlance. The result should provide a report for employees and the general public which will add to the fund of public knowledge of the manner in which our business system operates. Business, particularly industrial enterprise, has failed miserably in doing a public relations job equal to those done by its competitors for public approval and acclaim. We in business must look well beyond our day-to-day job of cost reduction, competing in the market place, providing jobs for people, paying dividends, producing constantly improved goods and services, and assuring the economic security of our individual enterprises. Unless we tell the great mass of voters, in an understandable way, what we are accomplishing *for them,* we may find that "it is later than we think."

The industrial accountant will play an important part in both employee relations and public relations as business slowly awakens to the need for selling itself. The accountant can assist in both the awakening and the selling process. But he must expand his part from that of technical adviser. He must drop much of his technical jargon and perhaps even professional terminology. Doctors are still writing prescriptions in latin, lawyers still like to amaze the layman with "ipso facto," "habeas corpus," and "a certiorari" (all frequently mispronounced). We industrial relations men are fast assuring

ourselves of professional status by inventing a private "gobbledygook" of our own. However, brush salesmen do not make a living by phrasing their sales patter in double talk and John Q. Public is not going to try to understand the profit system by taking a four year college course in accounting or even by investing in an accounting dictionary. Even with stock exchange and S.E.C. regulations, there ought to be some way of giving economic, financial and accounting facts in words in everyday use by the common man. The industrial accountant must develop ways of aiding management in putting across the facts of business life in commonly used terminology.

Human Resources Conservation An Open Field

The industrial accountant can also serve industrial relations by encouraging, through cooperation, periodic audits of the relative values of any and all personnel administration practices. Briefly, let us call it "keeping industrial relations cost reduction and profit conscious." We do not suggest that the accountants make the decisions, we only suggest that they aid in producing all of the pertinent economic facts. Notice also in the definition of business enterprise objectives the statement that operations must be carried on under conditions which provide for the maximum conservation of human as well as material resources. In the past, observation would seem to indicate that the industrial accountant, probably following the example of his line management's superiors, has placed too little emphasis on the conservation of human resources as compared with the great amount of effort expended on records, forecasts and interpretations having to do with the conservation of material resources.

The industrial accountant can aid in conserving human resources by examining all phases of his record production and interpretation work from the point of view of the economic side of human conservation as well as from that of material conservation.

A Word About the Place of the Staff Specialist

The management and direction of people at work, under whatever name we may give it, is therefore the essential element in management. It is the prime responsibility of the "line" manager, not the staff specialist. Since it is primarily line responsibility, line authority must be commensurate with line responsibility, and this responsibility or authority must not be diluted by delegation to "outsiders" who are

not directly responsible for performance. It is the function of the industrial relations specialist to bring to the attention of line management its essential responsibility in connection with people at work and to see to it that this responsibility is not shirked.

It has been indicated that the industrial relations executive functions in a staff capacity. It has also been indicated that the industrial accountant is a staff, not a line, man. For a full understanding of the industrial accountant's role in industrial relations and in management of people, it is necessary to give some attention to the function of the staff specialist.

It is indeed a temptation in a paper of this kind to go back to the early days of our industrial system, to point out the differences between management in that allegedly golden era and management at the present time. This has been done too well and too often. However, great strides have been made in the recent past in developing skills and arts and methods for improving personnel administration. The activities involved in managing people have been broken down into specialties in which many people spend their entire lives. We have specialists in recruitment, selection, placement, counselling, wage and salary administration, training and development, safety, labor relations, etc. Industrial accounting is a specialty of recent vintage too. Similarly, this field has developed its own subspecialties. We have cost accountants, tax accountants, payroll accountants and a host of other kinds of specialized accountants that bring to the entire field specific and detailed knowledge impossible of concentration into one human cranium.

The existence of these specialties can be and has been justified by practical results. There is no need at this late date to defend specialization in the many phases of management. The point is to bring out the difficulty of expecting men who are in charge of the productive activities of small or large groups of people to have at their finger-tips expert knowledge in all of these extremely specialized and increasingly technical fields, as well as expert knowledge of the operating aspects of the work involved.

The staff specialist in any business field has, first, the duty of aiding line management in determining the need for development of policy, of supplying the management with the facts, opinions and other data required for determination and definition of policy, providing for the written definition and dissemination of policy, and also the pro-

vision of certain services required to carry out the policy and to operate the enterprise. These are the "information" and "service" phases of the staff function.

Misunderstanding and Misuse of the Control Function

It is the control phase of the staff function that seems most objectionable to line people. For that reason, we shall spend more time this afternoon on this phase than on the others, which many or most line executives are happy to delegate. We must face the fact that there is line resistance to inspection of and reporting upon operations by people outside of the operating line, that is, the staff. This resentment stems undoubtedly from line misunderstanding of the meaning of the words, "control," "inspection" and "reporting," when used in this context as well as from misunderstanding and undeniable misuse of staff control responsibilities and authorities on the part of some staff people in the past. It is hoped that these abuses or objections can be traced to lack of enlightenment and clear thinking on the subject rather than to the deliberate usurpation of authority by staff executives or to face-saving on the part of the line.

We have said that the primary responsibility of the line is personnel administration. It is perhaps an undefined or indefinite realization of this fact that gives personnel staff people that kind of inferiority complex which may impel them subconsciously to usurp line authority in these respects. The overall duty of the line is the operation of the productive phases of the business. Here, too, the inferiority complex may well impel the industrial accountant to take over line authority, particularly when he takes into consideration only the cost or financial factors and fails to consider the human, mechanical or material phases with which line management is faced. However, when you plan to bring people together to achieve a common objective, you do have to define it and then split up the activities in such a way that each member knows what he is supposed to do.

Control Is Fulfillment of Organization Plans

In spite of all of its unfortunate connotations and implications, I still like to use the word, "control." Control is the dynamic phase of the process of organization. Someone must see to it that the various forces within the business proceed along defined organizational lines and within the limits set up by natural paths of relationship. This

control involves more than supervision. It involves, as has been suggested, independent inspection and reporting for the benefit of the top-line executive who correlates and coordinates operations. If properly conceived and understood, staff control activities to aid the exercise of line authority can be made no less acceptable than any other type of socially desirable limitation on individual freedom of action. The industrial accountant must learn to make his staff control functions acceptable to every member of the management team.

We can not, however, justify control without some examination of the things to be controlled. We must discover the manner in which the thing identified by this distasteful word, "control," operates in an organization. The top level of management concerns itself primarily with the determination of policy and delegates to lower echelons the carrying out of activities aimed toward the achievement of the institutional objective within the limitations of these established policies. In today's complex economic and industrial society and particularly in our larger industrial and business units, top level policy determination must depend primarily upon the advice of those directly charged with the execution of policies but also must lean heavily on the specialized advice of financial men, accountants, personnel administrators, lawyers, office managers, the various engineering professions and others.

Each of these specialists is charged with determining the need for policy definition and with supplying the information necessary to the making of policy decisions within the scope of his specialty. Each one must also be charged with the responsibility for seeing to it that policies are appropriately disseminated and explained to those who must work within policy limitations in achieving operating objectives. Once the policies have been established and explained, they must be carried out uniformly within an organization. Therefore, someone must at all times have the authority and responsibility for inspecting adherence to the policies and for reporting, through appropriate organizational channels, the results of such inspections. This is the essence of coordination. It is not supervision of the line by the staff. When all staff men, including industrial accountants, learn to exercise their control duties as means toward coordination rather than an end in themselves, we are bound to experience improvement in industrial relations.

The Information and Service Functions of Staff

Specialists in these various fields can also provide certain services more effectively and more economically through centralization than would be the case if these many services were distributed among a number of operating units. The accounting department, for example, is frequently charged with the design of accounting records and forms and the maintenance of the required supply of such forms. The engineering department frequently receives the assignment of centralizing all drafting work within an organization. The personnel department in many instances maintains a central file of individual employee records. Again, the personnel department is in many cases charged with recruitment and preliminary screening activities in connection with securing capable people.

All of these and many other examples indicate merely that activities which would normally be expected to be carried on by the line organization can best be centralized under staff specialists, particularly in the larger companies, thus eliminating duplication of effort, standardizing methods and procedures, and removing detail from important line positions. This type of activity is, for want of a better term, called the service phase of the staff function. It is only indirectly related to the control phase which has been described. By seeking means of providing more and improved services to the harassed line operators, accountants can provide them with more time to perform their essential duties in handling people.

The information or counselling phase of the industrial accountant's job is just as important as the control phase. In fact, it is even more important since control takes place only after policies and procedures have been established on the basis of information supplied. Observation again indicates that too many industrial accountants as well as too many personnel administrators have neglected the informational phase of their staff duties and place an undue amount of emphasis on the service and control phases. Control will only be accepted to the extent that the information supplied is appreciated.

We sometimes wonder whether specialized staff departments recognize the individual contribution which they can make to sound human relations by personal precept and example. We should be derelict in our duties if we failed to point out that the first job of the industrial accountant or any other specialist, is promotion and maintenance of

sound human relations in his dealings with his superiors, peers, and subordinates, with whom he comes in contact in the day-to-day discharge of his responsibilities. He can do a great deal personally to lubricate the gears in the relationships among departments by handling his own contacts with a minimum of friction.

For example, the accuracy of the work performed by the industrial accountant in connection with the records of employees' time, earnings and other payroll data will eliminate to a large extent friction with rank-and-file employees, particularly on matters which are part of labor agreements like pensions, insurance, wage and salary deductions, etc. Also, since a knowledge of adequacy of performance is so essential to employee satisfaction, the industrial accountant can aid tremendously in developing objective determinations of individual productivity or performance, which can be given at relatively frequent periodic intervals to employees at all levels in the organization.

Two Phases of Labor Relations

Most immediately important, however, is the industrial accountant's role in labor relations. The fact is that he should be a number of steps ahead of both the operating and the industrial relations people in determining the need for and providing cost and other significant data in connection with shop committee and national union demands. This brings us to the specific subject of the industrial accountant's role in labor relations. Generally speaking, there are two phases of management-union relationships.

The first phase has to do with negotiation of the labor agreement, commonly called the contract. The labor union contract is, or should be, a statement of the ground rules under which management and the union members are going to operate for the duration of the agreement. It is as much a policy of the company as is its pricing, hiring, costing or other policy. It is as firm and binding a contract as any other form of business agreement entered into by the management, although unfortunately many managements have agreed to and many unions have urged departure from contractual obligations during the life of the contract itself. The contract is not something to be entered into lightly or without detailed consideration of all of the elements on which agreement is to be reached. This consideration cannot be complete without reference to all of the relevant financial facts that only the accountant can supply.

The second phase of labor relations starts after agreement has been reached and the contract signed. It continues for the life of the agreement. It involves interpretation of the contract language by both sides and perhaps by an arbitrator, mediator, or umpire. It involves control with respect to adherence as well as understanding administration. As a matter of fact, the day-to-day administration of the labor union agreement may well become more important than the making of the agreement itself. If administered in such a way as to eliminate all basic human considerations, relationships between the parties at the negotiations will be strained at the best. If administered without due consideration of the contract wording and the original intent of the parties, the ground rules will be so changed at the end of the contract term that the original contract will be hardly recognizable.

Participation in Labor Contract Negotiations

Prior to and during contract negotiations, the accountant can develop cost and benefit implications of the labor union contract that can be invaluable. While the operating line executive may be broad gauged enough to see all of these implications and take them into account, he and the industrial relations executive should have the benefit of the advice of the industrial accountant in determining possible issues that will arise prior to negotiation and particularly in developing all pertinent data covering known demands. The industrial accountant should have available for those responsible for making the contract all objective data practicably procurable on the cost of past contractual provisions and practices. From these data, he should try to predict probable costs of changes that may have to be made. He should be able to provide warnings as to the most costly of the concessions requested and set up red flags on further extension or enlargement of costly practices of the past.

The industrial accountant should make himself available for the preparation of statistical data to support the counter arguments to be used by the management group. He should attempt to foresee the need for such statistical data and, in consultation with the operating and industrial relations executives, should see to it that they are prepared well in advance. Because of his broad knowledge of other phases of the business, the industrial accountant should be prepared to gauge the effects of changes or concessions on segments of company operations other than those immediately or directly affected by

the contract negotiations. All data prepared by the industrial accountant in carrying out these pre-negotiation and negotiation period activities should be presented in nontechnical form and should be capable of presentation by nonaccountants to rank and file, so that these data can be understood by all participants in the collective bargaining sessions.

All of this means that a representative of the accounting department should be present, wherever possible, at the pre-negotiation planning conferences and either present or readily available to the participants during the negotiations. In all conferences of management representatives, the industrial accountant should not be backward in expounding his thoughts and ideas. In addition to his advisory functions and his duties in connection with supplying information, he should examine all decisions made in such conferences with some appreciation of his control responsibilities. On the other hand, in the actual negotiations with the union, the industrial accountant should act in an advisory capacity only. He should speak or answer questions only when directly asked to speak by the line executive who speaks for the company. He should, however, pay detailed attention to the course of the negotiations and reassume his important advisory and control role at all caucuses of the management group.

In summarizing the part of the industrial accountant in labor negotiations, it might be said that the chief fault found by outside arbitrators, mediators, or observers in contract negotiation practices is that management has failed to present its story convincingly, factually, objectively, and understandably. In many cases, it has been said that the union did a much better job of pre-conference preparation and presentation. It is the job of the industrial accountant to see to it that the cause for such criticism is reduced, as far as his function and the scope of his position permit.

Participation in Labor Contract Administration

The job of the industrial accountant in contract administration is more difficult to define. Generally speaking, he should understand thoroughly all monetary provisions of the contract and assume the responsibility for seeing to it that these provisions are lived up to accurately and on time. He should continually study provisions of the contract that have important impact on cost and bring such provisions to the attention of the operating group with suggestions as to how the

cost impact can be reduced within the limits of the contract provisions.

Frequently there are contract provisions of which management can take advantage but which are passed over because, in many cases, only the union is interested in strict enforcement of the contract, and generally this means only those provisions which increase rather than decrease costs. The contract should be studied by the industrial accountant to be sure that management is getting its full return from advantageous contract clauses. Wherever possible, it might be well for an industrial accountant to sit in on meetings between the management and the union grievance committee. It is not proposed that the industrial accountant take an active role in such meetings but rather that he attend in the capacity of observer in order to gain a better understanding of the operation of the contract and to advise management representatives outside of the meeting in connection with contemplated settlements that may prove costly or in connection with satisfactory settlement possibilities with the lowest potential costs.

It would be almost impossible and certainly too lengthy a job to discuss in detail all of the specific contract clauses and the things that the industrial accountant can do in connection with each type of clause, either in negotiations or during the contract term. We do know that the type of help that the accountant can supply in labor relations has, until quite recently, been sadly conspicuous by its absence in dealings with organized labor in collective bargaining. The hardest part of the accountant's job in this respect lies not in doing his duty when asked but rather in not waiting until he is asked to do it and in getting what he has done accepted by the line and other staff departments without friction. In many or most instances, it is hardest to get along with people supposedly on your side when help or advice has to be given gratuitously to other "experts."

Salesmanship Is Demonstration of Value

The best way to sell is to demonstrate actual value, not to argue theoretical advantages. The labor and industrial relations situation is such that today we must have the right kind of thinking by the right kind of people. There is no room for professional jealousies, petty internal politics or technical aloofness. While we must always respect the other fellow's skill and point of view, as well as his fighting ability in his own sector, no one on the side of free enterprise can afford to sulk in his tent while a crucial battle is being fought nearby.

MANAGEMENT OPPORTUNITIES FOR THE INDUSTRIAL ACCOUNTANT

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MANAGEMENT opportunities for the industrial accountant are many and varied. They exist for the accountant who will continue to serve in the accounting field as well as for one who may move from that field to take on other managerial duties. They include opportunities for the accountant, himself, to undertake duties and responsibilities of management and opportunities to give his assistance to those in management positions. Probably no one who has ever been an accountant can or would try to divorce himself completely from accounting thought and characteristic point of view and from interest in accounting problems as they come before him. He may move from accounting to other activities, yet he need not leave his accounting field in order to participate in management in a valuable way.

Accounting and Management—Interlocking Fields

We recognize that accounting as such has its important place in business activities. The accountability for funds and property, for amounts owing by and to the business, the records of transactions which have occurred and resulting profits and losses and assets and liabilities, need to be accurately, honestly and efficiently kept. Historically, this was the initial purpose of accounting records and accountants' activities. It is still an essential function of accounting for large or for small business. Nothing will take its place. It is not enough, however, simply to have the records and statistics which will cover accountability for money and property. There is so much more of value to be gained from them that we should not stop at that point. Whatever value they have as records of the past, they should have even greater value as a basis for management action of the present and future.

It is difficult to fix a clear line of demarcation between accounting and management. Accounting, to be most valuable, must be geared to management decisions and management problems. Management, itself, involves much of accounting. Management must be continually conscious, both of the accounting for the past as a basis for today's decisions and action and of the accounting to be made in the future for the results achieved and to be achieved. The relationships of income and outgo, of profit and loss, of work and performance, are continuing management problems. Perhaps a clear dividing line between the accounting and the management fields cannot be drawn. Certainly we would not wish in business to set aside accounting and management as entirely separate divisions of activity, each acting apart, unrelated the one to the other. We could not hope successfully to conduct business affairs if this were done.

We might make a somewhat basic distinction by representing accounting as constituting the recording and statement of transactions which have occurred and the results achieved, whereas management is engaged in planning for the future. We know how positive is the rule that the accountant must not let his record of the past become confused with hopes or expectations for the future. He may, as an accountant, give his certificate or expression of opinion as to the balance sheet or income statement of the past, but he cannot give similar certificate or expression of opinion as to expectation of the future. Yet, even in stating the balance sheet and income account, the accountant must consider the expectation for the future. He cannot practicably operate without doing so.

Accruals, reserves, deferred charges, assets and liabilities generally, all involve the problem of future expectation. The distinction between current and fixed assets rests on an estimate of future realization. Whether an expenditure is to be stated among the assets or charged against income depends on whether or not there is expectation of future value. We need not unduly stress these points but merely note them to indicate how difficult it is to think of accounting as limited solely to the recording and statement of past transactions. It is almost equally impossible for us today to think of all the work required in preparing, assembling and stating the accounts of a business without thinking of its value to management. So, even within the purely accounting field, we can recognize the management opportunities for the accountant.

Management of the Accounting Function

Before we consider any questions relating to transfer by accountants from the accounting field to that of management, let us consider the management opportunities which exist in the accounting work itself. First, there are the management opportunities within the accounting department. Whether the organization be large or small, the work must be planned, organized and supervised if it is to be efficiently performed. Call this administration if you will, but it is in the nature of management. Whether the accounting force is numbered by tens or hundreds, there are many different records to be kept by various persons, often in different localities. The records and the work must be coordinated to make a unified whole. Each part must be efficiently handled in itself and in relation to all the other parts of the work.

It is not enough merely to see that certain prescribed records and procedures are carried forward accurately and with minimum of effort by those assigned to do the various divisions of the work. Two other questions must continually be considered. Are the practices and procedures now being followed the most efficient for obtaining the desired results or could changes advantageously be made? How far can we advantageously go in machine as compared with manual accounting, over-all and in various divisions of the work? Then there is the problem of where the different portions of the work can best be performed, i.e., the problem of centralized or decentralized accounting. But there is never any question that, however and wherever the work is done, there must always be the needed centralized administration and control so exercised as to give coordination and unity to the accounts and accounting work as a whole.

Then there is the question of whether present accounts and accounting records are those of greatest utility and efficiency. We always must recognize that changes in records and statements which will mean loss of comparison of present and future with the past, are not lightly to be made. Yet we should not hesitate to raise the question whether the gain in efficiency and utility may not be so great as to make change worth while. Often the change can be made without too great loss in comparative value. Because accounting is not static, the best-planned procedures and statements of the past are not necessarily the best today and the best of today will not necessarily be the

best for the future. Every change in product or processes, in prices or costs, in personnel or policies of management, can raise new standards of accounting utility. Matters of minor importance a few years ago may now call for major attention by management. The nominal income tax of 1913 or the fifteen per cent tax of the 1930s was no such problem as the income taxes of today. The relationships of prices, labor, material and equipment costs have greatly changed. Do the accounts as now carried and stated meet the standards of utility called for by today's conditions? To see that the accounts are such as will be most useful to management is part of the management problem within the accounting department.

Aid to Operating Management

In addition to the accountant's management opportunities in his own work as related to the administration of the accounting function, there are the opportunities for the accountant to aid—by his presentation and employment of accounting information—those directly charged with management of the business. This is one of the broadest fields of opportunity for the accountant to have his participation in management. To give this aid best, the accountant must have his own clear understanding of what the figures represent from a practical standpoint—their relationships to the actual affairs of the business and its problems. Possibly I need not expand greatly on this point to the members of the National Association of Cost Accountants who for years have studied it and emphasized its importance. The work which the association has done has been outstanding and of greatest value to industry. It has taken and continues to hold a notable place in business life.

Yet this point—the accountant's concept of the practical meaning of the figures he compiles and presents—cannot be stressed too strongly. It falls directly within the subject assigned me and a few words of emphasis may be very much in order. The manufacturing business of any size today consists of the following principal departments: sales, operations, accounting, industrial relations, legal, and finance. Engineering and industrial engineering are generally considered to be a part of operations. Purchasing may or may not be. Traffic may be a part of sales or may be separate. For the sake of this discussion I propose relating the functions of an accountant to sales, operations and general management.

Sales figures, either by totals or by products and territories, mean little without some knowledge of what is being sold, how sales are made, and how customers will determine the kind of goods they will buy.

Neither are operating costs very meaningful without an understanding of the materials, the labor, and the processes involved. For example, a budget of projected performance requires the sales and operating departments to take the primary responsibility for volume and price. The accountant is called upon to build up the costs from past experience and to put the figures in budgetary form. Neither sales, the operating department, nor accounting can work successfully in budget preparation without close cooperation. Moreover, when a budget has been formulated, it must be made effective through management action, with the accountant following results carefully to see if they do accord with the budgetary estimates.

All of this will prove to be largely valueless unless there is close cooperation throughout. If actual conditions prove to be different from budgetary assumptions, the question always arises as to a possible budgetary revision. Certainly nothing could be much worse than to have a pessimistic budget presented and then refuse to even think better results might be possible. The opportunities for the accounting department to be of aid to management in budgetary preparation and control are very broad. There is no place where it is more essential than in budgetary work that the accountant should have a clear concept of the practical meaning of accounting figures. If he maintains this concept in the course of his routine accounting work, he has the foundation for successful budgetary work.

The operator, to be effective, must have a thorough grasp of the figures making up his costs. Unless those figures are presented to him with complete accuracy, so that he learns to have respect for them, he is largely at sea and is forced to use rule-of-thumb methods. It therefore follows that the accountant who prepares these figures must have a real knowledge of the processes and their relationship, one to another. This does not come easily nor quickly. Having been on both sides of the fence, I have some feeling for both the accountant and the operator.

From the accountant's viewpoint, an operator who has had no training in accounting is apt to be rather "dumb" in his lack of comprehension of the value of the tool presented to him in the form of a

cost figure or a budget. He does not understand accounting theory and misses terminology and distinctions, so the accountant has not only to provide the tool, but to sell it as well. On the other hand the operator, once he accepts the tool, is a tough task-master from then on. His demands become endless. Once respect is built up, a "team" is established. Both operator and accountant set to work together to reduce costs and the joy of cooperative accomplishment begins to enter the picture.

Intelligent Appraisal of Operations and Results

It occurs to me that the next important step for the accountant is to learn to *challenge* all the operator's acts in the particular department or plant in which he is located and, if he is discerning and offers criticism in a constructive way, he is taking the initial steps to pull himself away from the strictly accounting field. Recently I visited our western operations and at each of our properties I spent some time with the chief accountants. The questions that I propounded were not as to the adequacy of the reporting system nor as to details of the costs but, rather, what they saw in the way the property was being operated that might be improved. I wanted to find out how often they got out into the mine and the mill and how close they kept in contact with their subordinates. At one of our largest mines, the accountant told me that he went over all the property each week with the manager. It was apparent that the accountant was surprised at my questions and, further, that it had never occurred to him that his position was such that he would be warranted in questioning the acts of the manager. In fact, it was easy to see that this was a different approach, one that appealed to the accountant.

The Function of Financial Reporting

The preparation and presentation of financial reports for stockholders, creditors and the public is another important field of accounting activity. To summarize clearly in brief statements the results of all the details which enter into the accounting for a given period calls for the best ability and judgment of the accountant. Such statements cannot try to go into a mass of details which would be meaningful only to those closely acquainted with the operations. In fact, too much detail may obscure the clarity of the statements and their perspective may be lost. Regardless of any technicalities or government

requirements, these statements must be fair and honest to merit the confidence of those who receive them.

It is not enough that statements be accurate from a technical accounting viewpoint, although that is necessary. They go to many not trained in accounting and we must try to make them properly informative and not misleading to those who will be considering them. This is not easy to do. Misunderstandings by the uninformed seem inevitable. We must work for a better and broader understanding by the public at large of the meaning and significance of accounting reports. But, recognizing conditions as they are, accountants and management must strive together to make our reports properly informative to those skilled and those less skilled in accounting.

We face today a multitude of technical requirements imposed by the Securities and Exchange Commission as to statements which fall under the commission's jurisdiction. Furthermore, these rules tend to make standards for other statements. We may feel that some of the requirements and rulings of the commission are not well founded but we cannot ignore them. We can recognize the tolerance permitted in many ways and hope too great rigidity will not be required. Perhaps we need to be more ready to voice our convictions when we believe the commission or its staff are in error. Whether or not we approve all that the Securities and Exchange Commission has done and is doing, we must admit that it has done much to stimulate accounting thought. The statements to be presented cannot be merely routine presentations. The figures and the descriptions of them must be such as will stand analysis and test. The statements will not meet the proper standards unless careful thought has been given to all the underlying accounting which leads to them, with clear concepts of what these underlying figures represent.

Government controls, Federal, state and local, in the entire field of business, business transactions and business relationships have now taken a place and demand attention far beyond anything that existed a generation ago. Many of these controls and attempts at their enforcement may be very arbitrary, perhaps ill-advised and unfair. It is not enough to say that laws and regulations are intended to accomplish some worthy purpose. What is done may not contribute to the stated purpose and may otherwise be undesirable. Yet, as they validly exist and must be complied with, we must know in a very practical way how they apply, what they cost and what are their results.

The accountants must help management to realize the impact of these factors in modern economic relationships.

At the same time, business retains its right to challenge the legality and merit of regulatory controls. If we are urging change, it is not enough merely to say that we do not like them. It is necessary to formulate and set forth the reasons why they are undesirable and harmful. Let us assume that legislators, administrators and the public want to do the right thing and will respond if we can show what is the right thing to do. It may not be easy. It may take time. But it is worth the best judgment and ability that can be brought to bear on the problem.

Government Contracts; Labor Relations; Taxes

Government contracts have also become a far greater problem than they were when government expenditures were smaller and within more limited scope. When such expenditures represent over twenty-five per cent of our national income, government contracts and their technicalities become a continuing problem in industry, both for accountants and management. Failure to understand them and their requirements and possible penalties may be most serious, not only from the dollar standpoint but in damage to standing and reputation. They must be studied and mastered as a special problem, both for accountants and management.

The labor union has done much to strengthen management for it has put the operator, together with the accountant, on his mettle. It takes greater experience today to operate a business successfully than it did twenty years ago. We hear much about the importance of productivity today and I am convinced that the records being achieved by the steel and automotive industries, when reduced to statistics, will be most encouraging. The important question is *not* what we pay labor. What labor freely gives in return is the important question. The recent automotive contract with labor need not be inflationary, nor do I think it will prove to be so when production is recorded.

The accountant of today has additional value to management in two special fields: one is labor relations and the other is taxation. With his facility with figures, he can interpret to management the implications of added labor costs and point out the ability of the business to accept the burden. In the field of taxation, some taxes are inevitable and must be accepted if we are to continue in business. Others will

depend on what we do and how we do it. If profits after taxes cannot be expected to be sufficient to merit the risk of a new venture or a new or increased investment, the proposed action may not be worthwhile and should be abandoned. This is the information management needs in making its decisions as to future action. We also recognize that the taxes on certain transactions will depend on how they are conducted, when costs may be deducted, and when profits will be realized. The period over which depreciation on new construction and equipment may be charged off for tax purposes may have a material bearing on whether or not a contemplated expenditure is worthwhile.

Becoming An Operations Man—A Personal Experience

Some thirty years ago I entered the steel business as an accountant. My first job was that of works accountant in an integrated steel plant —a plant which produced its own coal and iron and steel, and shipped the finished product in the form of billets, bars, etc. The plant employed some 6,000 men and for five years I continued in that position. Fortunately I reported directly to the president, who was not only a very thorough-going steel-maker but also understood the value of figures and charts. In order to supply him with the necessary tools he demanded, I was literally *forced* to learn the business. Gradually I was used in other mills in the same group of companies to set up procedures for the various departments—sales, operating, etc. Suddenly I was made general superintendent of a tool steel mill which produced bars, forgings, sheets—of high carbon or alloy. Due to a shift in the organization, my previous superior again became my superior and my course in learning the business the hard way continued.

At that time we worked thirteen hours a day one week and eleven hours a day the next and we were on the job seven days a week. It seemed degrading when we went down to a ten-hour stint and, years later, when the home offices of the steel companies in Pittsburgh started to operate five days a week, I felt that the industry had degenerated. In fact, the company that I was then responsible for operated six days a week for an entire year after all other steel plants in Pittsburgh had ceased to so do.

In my first three years as superintendent of a tool steel plant, I realized that I was neither fish nor fowl. I had ceased to be an accountant and was not yet an operator. It is a rather terrifying ex-

perience. You have no desire to admit failure and yet you are fully aware of your own inadequacy in the field in which you are engaged. It was not until I was offered a position in a pipe mill that I felt I dared admit to myself that I was an operator. Of my remaining twenty years in the steel business, sixteen were spent with two pipe companies, the change from one company to the other coming about because I was fortunate enough to assist in the development of a new process which changed the character of a portion of the pipe field. During my last four years in the industry I was responsible for the operations of Carnegie-Illinois Steel Corporation, a subsidiary of the United States Steel Corporation, producing approximately twenty-three per cent of the ingot capacity of this country and employing over 100,000 men.

Accounting Training Helpful in Analysis and Control

After I became an operating superintendent it seemed to me—as the days went along—that I had very little use for my accounting experience but, as I look back, I can see that such was not the case. The habit of thought, the logic that the accountant employs, the orderliness of his mind—all had an effect on working out manufacturing processes as well as on accounting for the results. Moreover, as one becomes removed from actual operations and becomes responsible for the workings of many plants, one learns to operate more and more through the use of figures. As you acquire engineering knowledge, the two types of experience merge and become a composite, to be employed as problems arise.

Friends have asked me whatever possessed me to leave the steel business to go into the copper business—which presented a whole line of new problems—without too much time to get them all ticketed and put in their proper places. My answer to them—and to you—is that the challenge proved to be the deciding factor. When any man reaches a time of life at which he is unwilling to accept a challenge, then it will be time for him to retire.

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